

INDIANA

Native Plant and Wildflower Society

NEWS

Volume I Number 1

Spring 1994

FIRST SIGNS OF SPRING

by Kay Yatskievych

Christmas has passed, the old year is done, and winter has been around long enough to make us yearn for spring. This is the time of year when the gardeners among us happily leaf through seed catalogs with joyous anticipation of spring planting. But what about us wild plant enthusiasts, what should we be looking forward to for the earliest beginnings of spring?

The undisputed champion for earliest recorded Indiana bloom date of a native wildflower goes by the rather unappealing name of Skunk Cabbage (*Symplocarpus foetidus*), which has been recorded as early as February 12. This plant has something of an unfair advantage, however, because its flowers have the curious ability to produce heat, lots of it, enough to raise the temperature of the tightly packed inflorescence as much as 75° F above the ambient air temperature. Through a very precise but not clearly understood control mechanism the plant maintains its temperature at about 57° F for up to two weeks and is capable of melting snow around it. Skunk Cabbage is most abundant in the northern part of the state, becoming less common as it reaches the southern limits of its range, which encompasses the northern two thirds of the state.

It would be appropriate if Harbinger-of-Spring (*Erigenia bulbosa*), found in woodlands throughout the state, had the next earliest recorded bloom date. Unfortunately, its March 26 date does not quite qualify it for that honor. Eight other native species have beaten that date: March 4, Snow Trillium (*Trillium nivale*); March 9, Marsh Buttercup (*Ranunculus septentrionalis*); March 13, Pennsylvania Bittercress (*Cardamine pensylvanica*); March 14, Sharp-lobed Hepatica (*Hepatica acutiloba*); March 17, Rue-Anemone (*Anemonella thalictroides*); March 20, Cut-leaved Toothwort (*Dentaria laciniata*); March 21, Spring Beauty (*Claytonia virginica*); and March 25, Round-lobed Hepatica (*Hepatica americana*). Spring Mill State Park usually has a wonderful display of both Snow Trillium and Sharp-lobed Hepatica.

A couple of introduced species also have very early bloom dates recorded: March 13 for Common Chickweed (*Stellaria media*) and March 14 for Vernal Whitlow Grass (*Draba verna*).

The total number of herbaceous species (excluding grasses, sedges and rushes) with recorded Indiana bloom dates in March is 23 native species and 8 introduced species. Because many botanists are still in hibernation in March, there are undoubtedly other species that are in bloom then but have not been collected (the above bloom dates are based on specimens in public herbaria). For instance, Common Blue Violet (*Viola papilionacea*) has almost certainly bloomed that early at some time during our history of plant collecting in Indiana, yet the earliest recorded date for it is April 2. But regardless of whether their first bloom is in March or early April, each year I await those treasured first signs of spring.

Botanist-photographer Kay Yatskievych works at the Missouri Botanical Garden in St. Louis. She has lived most of her life in Indiana and will soon finish writing and illustrating a Field Guide to Indiana Wildflowers, which will be published by Indiana University Press. She has had photos in numerous publications including National Geographic and the Flora of North America.

INSIDE

Up-to-Date with INPAWS - 1993 in Review.....	2
Calendar of Events	3
Free for the Picking	4
Our Native Conifers	5
Wildflower Photography.....	6
INPAWS Coming Events.....	6
Member Survey	7
Membership Application	8

by Jeffrey Maddox and Carolyn Harstad

INPAWS is a young organization. Considering our age, and the fact that this is our first newsletter, there is not much history to tell. But what there is, we'll share so you will have a better understanding of what you've gotten yourself into.

In the early part of the year, several bold individuals, tired of listening to all the talk about the need for a Native Plant Society, decided to take action, and sent out letters inviting people, whom they thought would be interested in forming a group, to a planning meeting.

February 25: Bill Brink, Joe and Ruth Ann Ingraham and Carolyn Harstad met to discuss the feasibility of organizing a native plant and wildflower society for the State of Indiana. Nearly every other state has had such an organization—some for decades.

Several lists proved useful in the process of identifying potential members for the new organization. Mike Dana of Purdue University had a computerized list from wildflower workshops. Names of individuals from environmental agencies and groups were added, as well as members of garden clubs and organizations. Ruth Ann mailed a letter to a number of people from these lists, and an initial meeting was scheduled for April.

In addition, letters went out to over 70 native plant societies, and information about by-laws, constitutions, newsletters, mission statements, programs, membership, dues and history began pouring in. A Constitution and By Laws committee headed by Chris Turner went to work, and the newly formed Indiana organization soon had documents drafted.

April 14: Eighteen people met in the Marion County Extension Offices, selected an acting board of directors, and started what was hoped to be a dynamic new organization.

May 8: The first official meeting was held at the Indianapolis Museum of Art. The purpose, constitution, philosophy, hopes, dreams, and possible leaders of the new organization were discussed. Motions were made and approved, and momentum was gained. Following the business meeting IMA staff members conducted tours through the extensively managed flower gardens and shrub plantings of the IMA.

June 6: We met at Holliday Park, ratifying our much-discussed Constitution and By-Laws, and approving our official name *Indiana Native Plant and Wildflower Society*. A nominating committee was selected to draft a slate of officers. Bill Brink agreed to serve as Program Chairman to plan meeting places and activities, and Chris Carlson consented to head up a newsletter committee. After the productive meeting, we hiked the Holliday Park trails and became acquainted with some of the local wildflowers.

July 17: INPAWS met at Butler University. Highlights of the business meeting included formation of a membership committee to discuss public relations and create an informational brochure about INPAWS. We agreed to participate in the establishment of a prairie seed nursery for Indiana. Rolland Kontak presented information concerning changes in plant collecting guidelines for the Hoosier National Forest. Gisela Reibel promised to investigate the possibility of a \$500 grant from the National Council of State Garden Clubs, which could be used in producing our pamphlet. Following the meeting, our host, botanist Dr. Rebecca Dolan, led tours of the Friesner Herbarium and the prairie plantings on the Butler grounds. Many exciting species were seen and discussed, and those unable to come missed an excellent program.

Up-to-Date Continued on page 3

Indiana Native Plant and Wildflower Society Newsletter

©Copyright 1994

Published periodically by the Indiana Native Plant and Wildflower Society for members.

INPAWS Mission

The Indiana Native Plant and Wildflower Society's purposes are to promote the appreciation, preservation, conservation, utilization and scientific study of the flora native to Indiana and to educate the public about the values, beauty, diversity and environmental importance of indigenous vegetation.

Newsletter Committee

Editor	Chris Carlson	(317) 257-5413
Co-Editor	Dan Anderson	(317) 849-3105
Review/Rewrite Editor	Marilyn Hamaker	(317) 846-0699
Assignments Editor	Bill Brink	(317) 255-0166
Science Editor	Kay Yatskievych	(314) 776-8501
Design & Layout Editor	Anne Wilson	(812) 342-6838
Mailing	Ruth Ann Ingraham	(317) 253-3863
Contributing Editors	Ruth Eiler	(219) 982-2726
	Jeff Maddox	(317) 253-0659
	Sue Nord	(317) 782-0763
	Jean Victor	(317) 823-1542

Submission of articles

Information for the newsletter is supplied by Society members and others interested in sharing information about Indiana native plants. Articles or drawings should be sent to the Editor, Chris Carlson, 6330 N. Park Avenue, Indianapolis IN 46220

Officers 1993-1995

Chairman	Jeffrey Maddox
Vice Chairman	Bill Brink
Corresponding Secretary	Ruth Ann Ingraham
Recording Secretary	Anne Wilson
Treasurer	Jean Victor

Committee Chairs

Programs	Bill Brink	(317) 255-0166
Newsletter	Chris Carlson	(317) 257-5413
Public Relations	Ruth Ann Ingraham	(317) 253-3863
Membership	Carolyn Harstad	(317) 257-9452

Illustrations by Jan Glimn Lacy

Newsletter Design by Bruce Morgan



August 14: Marian College was the scene of our August meeting. In a beautiful outdoor setting, officers were elected and installed, and a dues schedule adopted. Charter memberships were accepted until January 1, 1994; regular dues are now in effect. The temporary membership committee recommended that separate committees be set up for PR/marketing, membership, and fund raising. Dates and times for prairie seed collection were announced. Several members discussed plans to attend the Eastern Native Plant Alliance meeting at the Missouri Botanical Garden in September. The rest of the afternoon was spent exploring the wetland plants and ponds on the Marian College grounds.

September 18: INPAWS members participated in a field trip to visit remnant Indiana prairies. The program was hosted by Dr. Michael N. Dana, Associate Professor, Department of Horticulture, Purdue University. Following a tour of Purdue's research plots of native forbs and grasses used in ornamental landscaping and wildflowers used in roadside plantings, we visited remnant prairies in the vicinity.

October 9: INPAWS' first fund-raiser was an auction of native plants, seeds, gardening tools and supplies, books, decorative items and more. Member Rolland Kontak was the auctioneer for this very successful event held at Holliday Park's Holliday House. More than \$1080 were raised to benefit the Society.

November 12: INPAWS hosted a wine and cheese reception at The Indianapolis Museum of Art's Horticulture Study Center to honor Michael Homoya, author of *Orchids of Indiana*, and Lee Casebere, photographer for the book. The occasion was also the premiere for the book, which was sold to attendees at a special pre-release price, with a portion of the proceeds (nearly \$100) going to INPAWS. Author and photographer were on hand to autograph, and Mr. Homoya gave a brief presentation with beautiful color slides. Oliver Winery of Bloomington donated some of their excellent wines, adding an especially festive touch to the event, attended by about 75.

November 20: Bill McKnight, an authority on plant ecology, led a field trip to Pine Hills Nature Preserve, an outstanding geologic area, relict plant community and arboreal forest of white pine, Canada yew and Eastern hemlock. Pine Hills, a rugged area for hiking and birding, is also noted for its "turkey ridge backbones."

December 10: Peter and Carolyn Harstad graciously hosted a holiday celebration at their home. Members attending pitched in an amazing and delicious assortment of hors d'oeuvres and sweet goodies. Dan and Sophia Anderson surprised everyone with a little nature gift as they left.

December 31: As INPAWS' first year came to a close, it was exciting to note that we had 149 members. Plus, an additional 12 persons joined in the first half of January 1994, for a grand total of 162!!

For 1994:

Bill Brink, programs chair, has some great program ideas; members will receive program notices by mail. Don't miss any of the excitement and activity.

Members of INPAWS can: aid in "plant rescue" operations in areas being developed or destroyed; encourage landscapers and builders to incorporate native plants into their plans; work with local and state agencies in using native plants and wildflowers along highways, biking and hiking trails, parks and nature areas; and educate the public about the value of native plants in our ever-changing and fragile environment. Interested individuals may organize local and regional groups to work with the state organization.

Spread the word about the Indiana Native Plant and Wildflower Society. Help mold this emerging organization into a viable and worthwhile presence for Indiana so that generations of Hoosiers can enjoy the heritage of our native plants and wildflowers.

CALENDAR OF EVENTS

IMA GARDEN LECTURES

The Indianapolis Museum of Art is introducing free IMA Garden Lectures to be held the third Saturday of each month at 10:00 A.M. at the Horticulture Society Library.

- February 19 *Propagation of House Plants*
- March 19 *Starting Annuals from Seed*
- April 16 *A Wildflower Walk Through the IMA Grounds, Sue Nord*

HOLLIDAY PARK CLEAN-UP March 12

Holliday Park in Indianapolis is calling for volunteers to assist with removal of alien plant species which have invaded the Parks' woodlands. Come for a few hours or all day. Bring your own tools and gloves. For further information, contact John Schaust, Head Naturalist, Holliday Park, 6349 Spring Mill Road, Indianapolis 46260 (317) 327-7180.

WILDFLOWER FORAY April 29, 30

Meet in the parking lot of T.C. Steele State Historic Site 9AM Friday to hike the Selma Steele Nature Preserve. There will also be a variety of hikes, slide shows, etc. Write for a program to:

T.C. Steele State Historic Site
Route 1, Box 256
Nashville IN 47448 (812) 988-2785

Calendar continued on page 7



FREE FOR THE PICKING

by Dan Anderson

Before there were convenience stores and supermarkets, our ancestors supplemented their diets of staples and home-grown foods with examples of the local flora and fauna which had, by years of experience, proved to be edible. As more of us moved into cities, more of our food was purchased and knowledge of "wild stuff" forgotten by most, except for those still living in rural areas. With the increasing interest in "gourmet foods", some of the "wild stuff" is experiencing a resurgence of popularity in gourmet sections of large supermarkets and health food stores. You can find husk tomatoes, prickly pear pads, Jerusalem artichokes, mint teas, and mushrooms such as wood ears, chanterelles, and oyster mushrooms. The irony is that prices charged for these items are usually considerably higher than those of more familiar vegetables and fruits, yet many of these items are easily found by the experienced forager.

Some believe that they are living closer to nature when they eat wild foods; others prefer them because chemicals have not been used in their planting or cultivation. You don't have to make a statement by eating wild foods - many are very tasty, and add new dimensions to your eating habits.

Maple Syrup

Winter is not normally considered a good time for foraging, yet a variety of edibles is available, particularly if the ground is not covered by several inches of snow. For example, this is the time to make maple syrup.

Although sugar maples are the primary source of sap for making maple syrup, other members of the maple genus including Norway and silver maples, and even box elders, have been tapped with satisfactory results. The best time to tap is when the daytime temperature is above freezing, and the nighttime temperature, below. I usually take a brace and bit, and drill a hole about 3/8 inch in diameter about three inches into the trunk, in a slightly upward direction. I then drive in a metal "spile" which is a tapered tube with a notch on the end, although almost any kind of small-diameter pipe or tubing can be used, provided it is stiff enough to bear the weight of a container filled with sap. For a container, I use plastic milk jugs, which I tie to the tree so the drippings will go into the jug. When the sap is running well, the jugs may have to be emptied daily or more often.

The sap can be boiled all the way down to syrup, although this process is time-consuming, since it takes 20-30 gallons of sap to produce one gallon of syrup. For me, concentrating the sap by freezing greatly shortens the time required. Fill a pan hav-

ing a removable rack - the trick is to leave it out overnight (if it is well below freezing) or put it in your freezer until about half to 2/3 of the liquid is frozen. The sugar will concentrate in the unfrozen part. Remove the rack with the ice adhering, knock it off, replace, and add more sap. Once this has been done three or four times, the concentrated sap can then be boiled down. The boiling pot will have to be watched carefully during the later stages, because the syrup can scorch and be ruined just before the pot goes dry.

When the sap stops running, or when you have collected enough for your needs, remove the spile and seal the hole to prevent insects and fungal disease from getting to the inside of your trees. Nothing beats the taste of maple syrup on pancakes and waffles, particularly if you have had the experience of making it yourself.

Greens

There are several types of edible greens which are very hardy, and I have found examples in January and February. Many are familiar with Winter Cress (*Barbarea verna*) or (*Barbarea vulgaris*). This plant is very common in waste areas and fallow fields. When the weather is still cool and the flower stalks have not yet begun to form, the leaves can be used in salads or cooked as greens. There is often a slight bitter aftertaste, although this can be reduced or removed by a five minute boil with a change of water halfway through. I have eaten the flower buds, and they are quite acceptable after a short boil.

A favorite of mine is Pennsylvania bitter cress (*Cardamine pennsylvanica*). This small member of the mustard family grows as a basal rosette and stays green all winter long. Although individual plants are small, its slightly peppery taste without aftertaste makes it an excellent salad green. Because of its small size, use as a cooked green is out of the question.

Dandelion greens are acceptable, provided they are young, and flower buds have not begun to form. They can be used in salads, but may be too strong in taste for some. Like winter cress, they can be cooked for about five minutes in boiling water, drained, and seasoned with bacon dressing. For safety's sake, greens should be collected where weed killers have not been used, so resist the temptation to dig them out of your lawn if you have a lawn-care service!

I hope you'll have a chance to enjoy one or more of the above treats!

Dan Anderson and his wife Sophia are charter members of INPAWS who have enjoyed a wide range of edible wild greens, mushrooms, nuts, fruits and an occasional snapping turtle or muskrat over the past thirty years.



OUR NATIVE CONIFERS

by Dr. Rebecca Dolan

The winter season brings to mind thoughts of evergreen trees. In botanical terms, trees like pines and firs that bear cones or reproductive structures derived from cones are called conifers. These trees are considered more primitive than flower-bearing plants. Reproduction takes place in separate male and female cones over a two-year cycle. Ephemeral male cones produce pollen grains which are spread through the wind in the spring to droplets of sticky fluid that are exuded from immature female cones. Pine pollen grains have mickey-mouse-ear-like air bladders that help in aerodynamics. If you have ever shaken a branch of a pollen-shedding pine tree, you know that copious amounts of pollen grains are released. In southern states you often need your windshield wipers to remove the yellow dust after parking under a pollen-shedding tree. Large numbers of pollen grains are needed because the plants have to rely on chance encounters between pollen and female cone. Insects don't assist as pollination vectors.

Once a pollen grain has found the appointed drop on an immature female cone, the drop is sucked back into the developing woody cone and the egg is fertilized. During the growing season, a seed develops to surround the fertilized egg. Mature woody cones with numerous seeds inside are shed the following year. Many conifers have separate male and female trees, others produce both sexes on the same tree with female cones near the ends of the youngest branches.

Conifers are important economically for timber, furniture, landscaping, and also provide an important source of wildlife food. Pine "nuts" are not truly nuts, but are the seed. They served as a major food for some Southwestern American Indian tribes and are used in contemporary Mediterranean cuisine.

Pine trees and their relatives are able to keep their needle-like leaves over the winter due to special adaptations of the needles that help prevent water loss when the soil is frozen. The flattened or round needles have a low surface-to-volume ratio and are stiff due to a thick layer of waxy cuticle. The stomata, air exchange pores in the leaf surface, are sunken to decrease chances of evaporative water loss and the leaves have a special interior layer of water-proof material. Individual pine needles live 2 to 14 years. Needles are gradually shed throughout the year, rather than all at once in the fall as with deciduous trees.

Although conifers are common in landscape plantings, there are only 10 species native to Indiana. Not all are evergreen. A few genera drop their needle-like leaves over the winter, but they reproduce by cones or cone-like structures as described above.

The following summary can help you identify the most common conifer groups:

Mostly tree-like:

Pines Needles are round in cross-section (will roll between your fingers) and are found in groups or bundles (fascicles) of 2, 3, or 5 needles depending on the species. Tough, woody pine cones hang down from the branches.

Spruce Needles are square in cross section. When needles fall or are pulled off, pegs remain that make the branches bumpy. Spruce cones, resembling long pine cones, hang down from the branches.

Fir Needles are flat. When needles drop, a round dented scar is left on the branch. Fir cones are held pointed upright on the branches. As the seeds are released, fir cones break apart.

Hemlock Needles are flat and small. They have two parallel silver bands on the under surface. Hemlock cones are less than an inch long. This is the hemlock of Hiawatha north-woods fame, not Socrates' poisonous herb.

Mostly shrub-like:

Yews Needles are flat and appear to occur in two ranks along the stem. Fruit is an unusual red berry-like structure (aril) with a single seed inside. The fruit is poisonous to humans.

Arbor vitae, white cedar Flat branches with needles of two different shapes at 90-degree angles. Cones are very small and woody.

Junipers, red cedar Very short needle-like leaves in whorls around the stem. Seeds are produced in blue berry-like structures that are the source of flavoring in gin.

Conifers native to Indiana:

Prostrate Juniper	(<i>Juniperus communis</i>)
Eastern Red Cedar	(<i>Juniperus virginiana</i>)
Tamarack or Larch	(<i>Larix laricina</i>)
Jack Pine	(<i>Pinus banksiana</i>)
White Pine	(<i>Pinus strobus</i>)
Virginia Pine	(<i>Pinus virginiana</i>)
Southern Cypress	(<i>Taxodium distichum</i>)
Canada Yew	(<i>Taxus canadensis</i>)
Northern White Cedar	(<i>Thuja occidentalis</i>)
Eastern Hemlock	(<i>Tsuga canadensis</i>)

Dr. Dolan does research in plant ecology at Butler University in Indianapolis and is currently working on a population biology of rare indigenous plants. She is Director of the University's Friesner Herbarium, oversees Butler's 5.5-acre prairie and has put together a census of campus flora.



WILDFLOWER PHOTOGRAPHY

PHOTOGRAPHIC FOUNDATIONS

First in a Series by Tom Potter

As a charter member of the newly formed Indiana Native Plant and Wildflower Society, I am excited about the educational opportunities that lie ahead, and I look forward to learning from other members a good deal of information about the plant world. In return, I hope to provide a base of knowledge for your venture into the world of wildflower and plant photography. Therefore, I am inaugurating this column with the seemingly unrelated topic, "Foundations for Achieving Good Photographs."

Believe it or not, there is a more important foundation for wildflower photography than a good tripod. If you want to be a good (that is spelled *consistent*) photographer, the most frequently overlooked essential is a grounding in the fundamentals of photography. Too often, the nature enthusiast rushes to the local camera store, purchases equipment somewhat randomly, returns to the field, and fires away. When the results turn out disappointing, he or she rushes to the local bookstore or library and obtains several books with the words "nature photography" in the title. After reading these, another field trip is made, again with disappointing results. Finally, the equipment is returned to the closet, where it accumulates dust.

Unfortunately, most nature photography books are not the best places to learn the fundamentals of photography. Even the authors of these books, if they are honest, will admit that. Most of these guides will provide examples of good field technique and equipment, and will describe principles of light control. The information is helpful and will certainly enhance the field work of the budding nature photographer, but more is required to create a desirable image. I learned that the hard way!

To achieve a consistent quality level in your wildflower photography, you must become grounded in the principles of general photography. Nature photography, like any other specialization, is the second phase of achievement. You will likely have already taken some good photographs in a natural setting, but in the final analysis, consistency is the essential issue. You will not be satisfied - in fact, you will often be disappointed - until you can work with confidence, knowing that the outcome will be satisfactory. Confidence comes after you have learned the basic principles and formed a good foundation, with which you can adjust, manipulate, and alter photographic processes to create the desired end result.

How do you achieve this foundation? First, say to yourself, "I want to learn photography," and master the basic concepts. Second, apply these concepts to your nature photography in a systematic series of photo exercises and watch the consistency and predictability develop.

Two good sources of basic information are *Photography: Art and Technique*, by Alfred Blaker (Focal Press) and *Basic Techniques of Photography* by John P. Schaefer (Little, Brown). Although there are other books, I have found these to be the most readable and best illustrated. Try to obtain one of these and stay with it until you have a feeling for the foundations. Either is available at Borders book store in Indianapolis.

In future columns I will cover topics such as field equipment, lenses, additional books specific to wildflower photography, and typical problems in the field.

A parting word: if you want to be successful (consistent), you must realize that the new generation of do-everything cameras won't! You must still know the fundamentals, and knowing them will help you get the greatest satisfaction from your new skills. Good luck, and be patient!

Tom Potter is a professional photographer living in Martinsville.

INPAWS COMING EVENTS

February 26

Our first meeting of the year will feature a presentation on plant propagation techniques by Hollis Schuh, Indianapolis Museum of Art Greenhouse supervisor and horticulturist, to be held at the IMA Greenhouse, Indianapolis.

March 12

Walk the new trails and boardwalks to the historic Skunk Cabbage beds at Holliday Park, as well as assist in park clean-up of invasive, exotic plants. See Calendar on page 3.

April 17

Field trip to Clifty Falls State Park.

May?

Field trip to south-central Indiana including Brown County State Park and several members' gardens.

Also being planned:

- A photo slide festival where each member will be able to show up to 10 slides. Plan now by starting to gather your best nature images!
- An auction of native plants (see *Up-to-Date with INPAWS - 1993 in Review*, October 9 entry)
- A canoe trip to Pigeon River to see carnivorous plants and orchids

Postcards will be sent to members in advance stating date, time and place to meet for carpooling. Please feel free to call anyone listed on page 2 for details.



INPAWS MEMBER SURVEY

1. Membership

- ☐ I am a charter member
- ☐ I have paid my 1994 dues
- ☐ I am enclosing my 1994 dues
- ☐ I am enclosing a donation for the society

2. What would you like to see as the primary focus(es) of this group?

3. I have the following skills which may be useful to this organization (describe . . . legal, computer, writer, artist, proofreader, etc.)

4. I would be willing to serve as an officer (you may check more than one)

- ☐ President ☐ Vice President
- ☐ Treasurer ☐ Recording Secretary
- ☐ Corresponding Secretary

5. I would be willing to serve on a committee (list interests)

NAME _____
TELEPHONE _____

6. I would like to help with a newsletter:

- ☐ Editing ☐ Writing articles
- ☐ Typing ☐ Printing
- ☐ Design & layout ☐ Artwork
- ☐ Assembly ☐ Mailing
- ☐ Computer Service

7. I have the following program I would be willing to share:

8. I recommend the following areas for possible field trips - because

9. I can help with:

- ☐ Rescuing plants
- ☐ Leading field trips
- ☐ Giving tours
- ☐ Making arrangements for meetings or outings
- ☐ Hospitality (cookies, coffee, etc)
- ☐ Helping with mailings
- ☐ Organizing field trips

10. Other comments:

Please send completed form to:

Carolyn Harstad, 5952 Lieber Road, Indianapolis, IN 46208



Calendar Continued from page 3

FLOWER AND PATIO SHOW

Several Indiana Native Plant and Wildflower Society (INPAWS) members will be participating in the 1994 Garden Club of Indiana, Inc. garden theater series at the Flower and Patio Show, Indiana State Fairgrounds.

- *Saturday, March 12 12:00 noon and 5:00 PM*
Gardening with Wildflowers Carolyn Harstad,
with drawings of wildflowers by Jean Vietor,
and photographs by Bill Brink
- *Sunday, March 13 12:00 noon and 5:00 PM*
Roadside Gathering and Drying of Indiana
Wildflowers Claudia Hall
- *Wednesday, March 16 5:00 PM*
Beauty from Bulbs Caroline Brunner
- *Saturday, March 19 and Sunday, March 20 5:00 PM*
Indoor Gardening Techniques Katrina Vollmer

ORCHARD IN BLOOM

Sponsored by the Orchard Country Day School, April 29 to May 1. Lectures will be held in the Holliday House at Holliday Park, Spring Mill Road, Indianapolis.

- *Saturday, April 30 2:00 PM*
Gardening with Wildflowers Carolyn Harstad
Prairie Wildflowers Sue Nord
Rock Gardens Chris Turner
- *Sunday, May 1 2:00 PM*
Hosta, Queen of the Shade Carolyn Harstad

WILDFLOWER WORKSHOP Tuesday, May 3

Garden Clubs of Indiana sponsors its annual Wildflower Workshop at McCormick's Creek State Park. For more information contact: INPAWS charter member Amy Mason at (812) 533-2306.

GARDEN TOUR OF ENGLAND June 4 through 16

The Indianapolis Museum of Art is offering a highly customized horticultural travel program for its members, especially for those who are gardening enthusiasts and appreciate the botanical world. A garden study tour of England will be led by Hollis Schuh, IMA Greenhouse Supervisor and Horticulturist, from June 4 through 16. For more information, contact Hollis at (317) 920-2652, or IMA annual programs manager Carol Nelson (317) 923-1331.



INPAWS MEMBERSHIP APPLICATION

Yes! I/we have been waiting for this exciting opportunity! Enclosed is my/our check for the following:

- | | | | |
|-------------------------------------|------|------------------------------------|-------|
| <input type="checkbox"/> Student | \$10 | <input type="checkbox"/> Patron | \$100 |
| <input type="checkbox"/> Individual | \$18 | <input type="checkbox"/> Sponsor | \$250 |
| <input type="checkbox"/> Family | \$25 | <input type="checkbox"/> Corporate | \$500 |

Additional Donation \$ _____ Total Enclosed \$ _____

NAME _____
 ADDRESS _____
 CITY _____

TELEPHONE _____
 STATE _____ ZIP _____

Membership Categories

- Student:** For full-time students under the age of 22. Benefits include meeting notices, one vote on organizational issues, INPAWS newsletter, INPAWS membership directory.
- Individual:** Benefits are the same as for student.
- Family:** Includes Head(s) of household and dependents. Benefits include meeting notices, INPAWS newsletter, INPAWS membership directory and two votes on organizational issues.
- Patron:** Benefits are the same as for family, plus donation.
- Sponsor:** Benefits are the same as for family, plus donation.
- Corporate:** Benefits include newsletter, meeting notices, directory, special recognition.

Please complete questionnaire on back, then kindly detach this form and mail it, along with your check made payable to:
 Indiana Native Plant and Wildflower Society, c/o Carolyn Harstad, 5952 Lieber Road, Indianapolis, IN 46208.

Renew your membership now for 1994!

..... ✂

printed on recycled paper



Bulk Rate
 U. S. Postage
 PAID
 Indianapolis, IN
 Permit No. 9892

Indiana Native Plant
 and Wildflower Society
 6106 Kingsley Drive
 Indianapolis, IN 46220

INDIANA

Native Plant and Wildflower Society

NEWS

Volume I Number 2

Summer 1994

Landscaping with Natives Spotlight on Foamflower

by Barbara Kaczorowski

When I am designing gardens for shade, I almost always include Foamflower (*Tiarella cordifolia*). Native to rich woodlands of the eastern United States (but not Indiana) and hardy from Zones 3 through 8, this adaptable, semi-evergreen plant is one of the prettiest flowering ground covers I've seen.

Foamflower forms dense mats of foliage about six inches high, spreading strawberry-like by runners or stolons. Its leaves are highly variable in shape and color. The specific epithet *cordifolia* means heart-shaped, as many of the leaves are. But some of them are five-lobed, resembling maple leaves, while most have only three faint lobes and a toothed margin. While I've read that the leaves can be shiny dark green, the strain I grow has lime green leaves bristling with hairs on the upper surface. This last characteristic makes the plant distinctly unappetizing to slugs, a real asset in a shade plant. And, after last winter's 25 degrees below zero, about eighty percent of the leaves are still perfectly green.

Foamflower is aptly named for its froth of white flowers which appear in late April and bloom for about three weeks. The starry flowers appear on spikes or racemes, standing at most a foot tall. While the individual flowers are less than a third of an inch across, as many as fifty are borne on each stalk. When you consider that each plant sends up ten to twelve stalks, and that the plants cover the ground like a blanket, you can imagine how *Tiarella* earned its common name of Foamflower. The effect is of a frothy floral drift which seems to float over the foliage.

But the lovely look of Foamflower's foliage and flowers does not tell the whole story. For when you pass by your drift of Foamflower on a warm day in early May, you will breathe in a most delicious and ethereal fragrance. And you need not bend double to appreciate this delightful scent, for it is wafted into the air in an intoxicating way. Oddly enough, nowhere have I read of Foamflower's fragrance, yet it is most pronounced in my garden, especially in the morning when my plants are in full sun.

Wherry's Foamflower (*Tiarella cordifolia* var. *collina*, sometimes sold as *T. wherryi*) is more widely available in the trade



and a nice plant in its own right. It is a clump grower, not spreading by stolons like the species. The leaves are often tinged with red, and are not as evergreen. Its flower stalks are a couple of inches taller, and the flowers themselves are very slightly tinged with pink. The stamens also are pink, rather than yellow, adding to its flush of color. Its big advantage over the species is that it will sometimes rebloom in late summer or fall especially if you deadhead (remove spent blossoms) it after spring bloom. Its disadvantage is that it has little or no fragrance, at least to me. Because of its different growth habit, it is not suited to ground cover use.

Foamflower is a tough plant if you give it a good soil environment. As you can guess from its native habitat, it does best in a soil rich in humus. If your soil is a heavy clay, add some sand as well as copious organic matter. Foamflower prefers a slightly acid soil, but the incorporation of humus is usually adequate to moderate pH to its liking. If you find your plants becoming chlorotic (losing their green color), scratch some wettable sulfur into the soil around them.

Spotlight on Foamflower continued on page 2

Inside...

Germinations from Jeffrey	2
INPAWS Calendar of Events	3
Pollinators of Plants	4
Where Did the Flowers Go?	5
INPAWS Members help with Butler's Prairie Burn	5
Wildflower Photography Part 2 - Tripods	5
Book Reviews	6
The Indianapolis Greenways Project	8
Not-For-Profit Status Achieved	8
Getting Started	9
A Historical Perspective on Roadside Vegetation	9
Related Coming Events	10
Membership Application	11

Germinations from Jeffrey

by Jeffrey Maddox, INPAWS President

Welcome to our second newsletter! The newsletter committee deserves our thanks for their efforts to keep us all in touch and for the quality publication they've produced.

This committee is a shining example of what INPAWS needs to grow into the role we wish to play as a strong, powerful voice for native plants in Indiana — participation! The board of directors (with input from others) has recognized several other areas where a committee is needed, and we will be doing a better job when we get these committees up and running. Who should head them? Who should staff them? The answer is: each and every one of us. If we want to see INPAWS develop into a productive organization, each member needs to work with at least one committee — it's your choice how well we grow.

Committees needing chairs and/or members include:

- Annual Meeting
- Speakers Bureau
- Publicity/Public Relations (need committee members)
- Fundraising
- Plant Rescue/Special Projects
- Deer Management

Please call one of your executive officers to become more active.

I'd like to highlight the Deer Management Committee (or whatever it might be called) as a current and relevant example. It could be very important to INPAWS, not because we are interested in deer per se, but because we are interested in native plants, and deer are negatively affecting those plants. More importantly, the overpopulation of deer is a prominent, statewide issue right now, and there is no one speaking for the plant communities which they are destroying. The talk so far has centered on deer killing.

We have a valuable opportunity for INPAWS to forge a public identity and become a key player in native plant issues. Many of the people who are heavily involved in the State Park system deer issue have come to me, as INPAWS president, asking us to speak for the plants and remind everybody why the deer overpopulation subject came up in the first place: a concern for the destruction of our native plants and habitats. These matters are at the core of why we came together; let's act on them.

Bottom line is: INPAWS will grow into a strong, respected organization as a direct result of the involvement of its members. Join or lead a committee today!

Jeffrey Maddox is a field steward for The Nature Conservancy in Indiana.

Spotlight on Foamflower continued from page 1

Like most woodland plants, Foamflower requires shade at least during the afternoon. Plant it where it can spread about and produce the lovely drifts of bloom which give it its name. Although it is a stoloniferous plant, it is by no means aggressive, coexisting happily with spring bulbs and ephemerals, as well as other shade lovers like epimedium, hosta, pulmonaria and crested iris. No prettier companion can be found for planting under Rhododendrons and Azaleas, except perhaps for the recent selections of *Phlox stolonifera* ("Pink Ridge," "Blue Ridge," "Sherwood Purple" and "Bruce's White"). But that's a story for another day.

Barbara Kaczorowski is a landscape designer and horticulturist with a longstanding interest in native plants. A writer for Rodale Press and contributor to Horticulture magazine, she is co-owner with her husband Michael of Accent Gardens, a local landscape and nursery business.

Indiana Native Plant and Wildflower Society Newsletter

©Copyright 1994

Published periodically by the Indiana Native Plant and Wildflower Society for members.

The Mission of the Indiana Native Plant and Wildflower Society

is to promote the appreciation, preservation, conservation, utilization and scientific study of the flora native to Indiana and to educate the public about the values, beauty, diversity and environmental importance of indigenous vegetation.

Officers 1993-1995

Chairman	Jeffrey Maddox	(317) 253-0659
Vice Chairman	Bill Brink	(317) 255-0166
Corresponding Secretary	Ruth Ann Ingraham	(317) 253-3863
Recording Secretary	Anne Wilson	(812) 342-6838
Treasurer	Jean Vietor	(317) 823-1542

Committee Chairs

Programs	Bill Brink	(317) 255-0166
Newsletter	Chris Carlson	(317) 257-5413
Public Relations	Hilary Cox	(317) 272-4938
Membership	Carolyn Harstad	(317) 257-9452

Newsletter Committee

Editor	Chris Carlson	(317) 257-5413
Co-Editor	Dan Anderson	(317) 849-3105
Science Editor	Kay Yatskievych	(314) 776-8501
Design & Layout Editor	Anne Wilson	(812) 342-6838
Mailing	Ruth Ann Ingraham	(317) 253-3863
Contributing Editors	Ruth Eiler	(219) 982-2726
	Jeff Maddox	(317) 253-0659
	Bill Brink	(317) 255-0166
	Sue Nord	(317) 782-0763
	Jean Vietor	(317) 823-1542
	Barb Kaczorowski	(317) 877-0850
	Betty Trusty	(317) 831-6404

Submission of articles

Information for the newsletter is supplied by Society members and others interested in sharing information about Indiana native plants. Articles or drawings should be sent to the Editor, Chris Carlson, 6330 N. Park Avenue, Indianapolis IN 46220

Illustrations by J. Glimm-Lacy

Late May, date to be announced:

A field trip to the Indiana National Lakeshore and dunes area to see lupines, puccoon, etc.

Mid-June:

A field trip to Pigeon River in northeastern Indiana in search of native orchids and carnivorous plants from the bogs—details to follow.

Auction and Sale of Native Plants

Saturday, June 4, 1994

Auction begins at 10:30 AM; donations accepted from 9 AM

GARFIELD PARK

Shelter House Number 2

2450 Shelby Street, Indianapolis
(near Southern Avenue)

Please help make this a successful auction!

Dig and pot plants early for good-looking plants at auction time.
Label plants with common and scientific names, cultivation requirements and other descriptive information.

Include all kinds of native plants, such as flowering annuals, biennials and perennials, ferns, grasses, mosses, vines, shrubs and trees from woodland, meadow, prairie, bog, hill and dale.

Plants should be from private collections; we do not dig plants from the wild.

Remember garden supplies, tools and other nature-related items also.

Auctioneer will be Rolland Kontak, license number AU01028940

Some of the rarities to be offered:

*Various Native Orchids, Bottle Gentian, Goldenseal,
Red-stemmed Lady Fern, Royal Catchfly, Prairie Grasses
and others too numerous to mention*

Questions?...Call:

Anne Wilson	(812) 342-6838	Rolland Kontak	(317) 356-0953
Sue Nord	(317) 782-0763	Gisela Reibel	(317) 257-1783

Lunch will be available at a modest cost

Pollinators of Plants

by Dr. Rebecca W. Dolan

Why is there such a wondrous variety of flowers?

Plants produce their amazing and beautiful array of flowers in order to reproduce. Exquisite as flowers may seem to us, from the plant's perspective all the vast array of colors, shapes, and scents are attempts to lure agents to assist in pollination. Pollination is the movement of pollen from the male part of the flower, the stamen, to the female part that houses the eggs, the pistil. Animal pollinators (insects, birds, even a few mammals) get food energy from nectar or the pollen itself as they feed from flower to flower; plants get the benefit of outcrossing (cross pollination). Floral characteristics are keyed to the senses of the pollinators. Certain combinations of floral traits indicate the most likely agent of pollination:

Adaptations for Wind Pollination

- Few colorful, showy floral parts
- No odor or nectars
- Male flower parts on long filaments, easily shaken in the wind
- Flowers often develop before plant leaves out
- Abundant pollen

Examples: Many forest trees, grasses (including corn), Ragweed. Wind pollinated plants are often the source of hay fever allergies since much pollen must be produced due to non-directional vectoring, relying on chance encounter of pollen and pistil.

Adaptations for Hummingbird Pollination

- Flowers often large and tubular
- Copious nectar, no odor
- Usually bright colors such as red
- Stamens extend outside the flower
- Pollen often held together by sticky threads

Examples: Cardinal Flower, Hibiscus, Royal Catchfly, Trumpet-creeper, Red Columbine

Adaptations for Bat Pollination

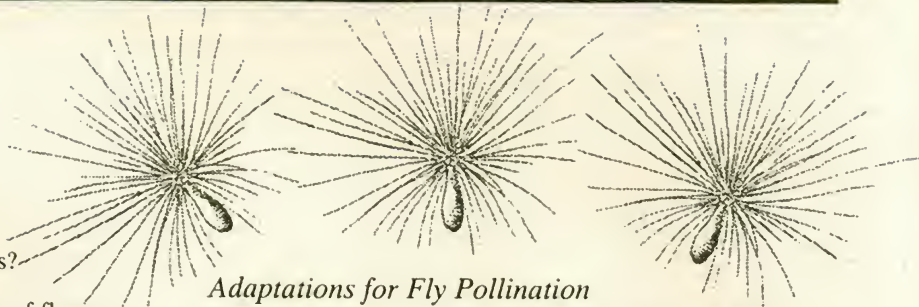
- Large flowers on long, strong stalks away from leaves
- White or dull colored, often dark red or maroon
- Musty, fruity, or mousey odor
- Lots of pollen, nectar, or both

Examples: Mostly tropical such as banana, Baobab

Adaptations for Bee Pollination

- Colors often yellow, blue, or purple with contrasting color "nectar guides" that are more striking under UV light, the wavelengths in which bees see the best
- Flowers often have a flat area, or landing platform
- Sweet odor
- Male and female bees live on nectar, females collect pollen to feed larvae
- Flowers usually bilaterally symmetrical
- Some flowers have spring-loaded stamens that spring loose to dust the bee with pollen

Examples: Snapdragon, Foxglove, Marsh Marigold



Adaptations for Fly Pollination

- Usually have unpleasant, rotting flesh odor irresistible to flies
- Flower parts often mottled red color of rotten meat that attracts flies looking for places to lay their eggs
- Many plants have deep flowers that trap the flies. As they struggle to exit, they become covered with pollen that is then transported to another flower.

Examples: Skunk Cabbage

Adaptations for Butterfly Pollination

- Flowers have pungent but aromatic scent
- Flowers often clumped into platforms
- Usually radially symmetrical
- Often have spurs, long tubes of fused petals, filled with nectar that the butterflies reach with their tongues.

Examples: Butterfly Weed, Phlox, Daisy

Adaptations for Moth Pollination

- Mostly night-blooming
- Intoxicatingly sweet odor
- Usually radially symmetrical
- Usually white or light-colored

Examples: Gardenia, Tobacco, Four-o'Clock, Evening Primrose, White Campion

Adaptations for Beetle Pollination

- Petals often thick and waxy, white or dull in color
- Strong odors: fruity, spicy, or foul, not sweet
- Flowers often cylindrical and bowl-shaped
- Some secrete nectar, beetles feed directly on flower part or special food bodies in others

Examples: Magnolia, Tulip Poplar, Liver-leaf (*Hepatica*)

A final pollination type is that of some tropical wasps. They aren't after food, but sex, from flowers. Some species of orchids produce flowers that mimic female wasps. They open before the female wasps are mature and in some cases give off the same scent or pheromone. As the males attempt to copulate, pollen is carried from plant to plant.

Need assistance in identifying a plant?

Call 317-283-9413 or write:

Dr. Rebecca W. Dolan
Director — Friesner Herbarium
Butler University
4600 Sunset Avenue
Indianapolis, Indiana 46208

Dr. Dolan does research in plant ecology at Butler University in Indianapolis and is currently working on a population biology of rare indigenous plants. She is Director of the University's Friesner Herbarium, oversees Butler's 6-acre prairie and has put together a census of campus flora.

Where Did the Flowers Go?

by Jean Vietor

Being an artist who paints wild things, I spend a lot of time in wild places, sketching and photographing flora and fauna. I like the state parks, for they offer wild and tame together — bathrooms, restaurants and wilderness — ah! Turkey Run, Clifty Falls and Brown County are my favorites - or were. Turkey Run and Clifty Falls still offer a feast for the eyes and cameras, but Brown County? It used to be a great place, but now it is difficult to find anything but the bare minimum of wildflowers.

Two years ago, with camera and sketch pad in hand, I headed for Brown County State Park. I spent an entire day there searching and made not one sketch nor took one picture — there was nothing there! At the time, I was bewildered as to where the flowers had gone. Later I discovered that they had provided fine feasting for the deer I had been photographing eyeball to eyeball. I love the deer — I love the wildflowers — a real dilemma, right? A real dilemma — YES!

For the time being, and maybe forever, Brown County State Park is off my list as a good place to see beautiful wildflowers.

Jean Vietor is an award-winning artist whose subjects include wildflowers as well as other forms of wildlife. An Indianapolis resident, she is a charter member of INPAWS and serves as its treasurer.

INPAWS Members Help With Butler's Prairie Burn

Following the clearing of alien Amur honeysuckle at Holliday Park on March 11, a dozen INPAWS members helped conduct the annual burn in the Butler University Prairie. Dan Zay of the Division of Nature Preserves, Indiana Department of Natural Resources, led the burn crew. Volunteers helped make sure the fire was contained using backpack water containers and flappers (rubber mats on broomsticks).

Prairie grasses are an especially good fire fuel; the whole site burned in about fifteen minutes. Everyone witnessing one of these burns can appreciate a little of the fear and awe pioneers must have felt seeing uncontrolled prairie fires.

The six-acre Butler Prairie is burned every year to help control invasive weeds and to fertilize the desired plants, according to Dr. Rebecca Dolan who manages the Prairie. Fire was a natural occurrence in many ecosystems in pre-settlement times. Prairie plants are mostly perennials with dormant buds at or below ground level during the winter. A quick-burning fire clears off the old above-ground biomass from the previous year without damaging the plants. Fire can also enhance germination of seeds of fire-adapted species. Non-prairie weeds and nuisance plants such as Cottonwood, Sumac and Trumpet-creeper are not as resistant to fire. Trees and shrubs with buds held on above-ground branches are especially susceptible, so their spread can be controlled with fire.

Newsletter Sponsors

Many thanks to two companies who have made contributions to help cover the expenses of producing the summer INPAWS newsletter: WildSide and Great Outdoors TurfScapes. Their ads appear on page 10.

Great Outdoors TurfScapes, owned by founding INPAWS member Bill Brink, is a professional turf management company located in Indianapolis. Bill's concern for the environment and his wealth of knowledge regarding native plants have helped give Great Outdoors a top rating with local consumer groups.

Brian Creek, president of WildSide, believes it is neither possible nor desirable to separate the human from the natural world. His company performs ecological restoration and provides planning and design for private native landscapes as well as parks and other public greenspaces.

Wildflower Photography Part 2—Tripods

by Tom Potter

The most important piece of field equipment you acquire after the camera, lens and lens hood is the tripod. There are a few excellent, some good and many inferior ones.

The basic qualities of a good tripod are listed in order of importance.

1. A tripod, first and foremost, must be steady.

This implies that it will be heavier than expected. A warning — do not be talked into a light one, for it will not withstand the wind and will not safeguard your expensive equipment. Nor will it be steady! The rule is to buy the heaviest one you can carry for most outings.

2. A tripod should be versatile.

Since wildflower photography often requires shooting in unusual locations, (steep hillsides, etc.) and from a variety of perspectives, the legs of the tripod should both spread and extend to great extremes. When looking at tripods, see how low you can set the head. Also check for the length of leg extension. But remember that steadiness is the prime issue; extension is only helpful if the camera is steady.

3. A tripod should be well-machined.

This is noticed when trying to extend or shorten the legs. This should work smoothly regardless of weather conditions. The leg-lock mechanisms should be easy on the hands and large enough to be operated when you are wearing gloves. The center column should also work smoothly and be easily adjusted. Use with caution at all times to avoid potential increase in camera vibration. (This is often one of the more awkward parts of the tripod configuration.)

Tripods continued on page 6

4. The tripod should provide the option of using a variety of heads.

You may want to use a different head for each type of nature photography. When considering the purchase of a tripod, see if you can remove the existing head. If you can, make sure the tripod has a standard mechanism for attaching other heads. (You can usually buy good tripods without a head and add your old favorite.) This flexibility allows you to use a single-control head for your birding scope, or a monoball or a two or three-axis head for wildflowers, birds, mammals and scenics.

You can see that there is more than meets the ground when buying a support system for your camera. Buy right, and build for the future without having to trash six or seven inferior tripods.

Some excellent tripods? Gitzo, Bogen and Bembo. All are versatile, meet the above requirements and offer a variety of heads.

I consider the Bogen 3021 tripod the best buy. It has excellent quick leg adjustments and offers low easy positioning necessary for good wildflower work. Bogen also offers a wide variety of heads. You might consider owning two models, one for wildflower work and the other for general use. Bogen also has an inexpensive shoulder strap for carrying the tripod.

Gitzo makes the tripod that most professional photographers use. It is well machined, solid, and has excellent leg extension and spread. The extension release is not as fast as that of the Bogen, and Gitzo is two to three times as expensive. But if you can afford one, it is well worth a look. Like Bogen, this company provides a wide range of heads.

The Bembo tripod without a doubt is the most versatile. It provides any combination of leg movements that you can imagine. This can be very helpful when working in difficult situations. The tripod can be set up faster than any other one on the market. It is best used with a ball head for achieving any position quickly. One important warning — never let go of the camera until the tripod is securely locked in place. When the locking device is loose, it is like trying to carry a bundle of sticks, all going in different directions. That said, this is the one I use when I am only doing wildflower work for the day.

Again, the best buy is the Bogen 3021 with a three-way pan/tilt head for overall use. (A tip — if you buy or own a Bogen, go to the hardware store with the tripod and purchase a socket and 1/4 ratchet handle for tightening the leg-adjustment lock-nuts. Keep it in your camera vest or bag.)

Shop around and create the system that works best for you. As with all quality products, consider the tripod an investment. Next time, I will address the subject of proper tripod use.

Tom Potter is a professional photographer living in Martinsville.

Book Reviews

Seed Germination: Theory and Practice

by Dr. Norman C. Deno, Penn State University

Reviewed by Dan Anderson

At a recent Master Gardener's meeting, this book was mentioned as being an excellent guide to the treatment of seeds of wild and cultivated plants to obtain maximum germination. Cost of the book was given as \$20.00, postage included. I ordered one and received it in about two weeks.

Of the 240-odd pages, two-thirds were taken up with experimental results on approximately 2500 species tested. There are no long discourses on chemical reactions related to germination, and the overall approach is directed to the plant experimenter or gardener rather than to the research chemist.

Several variables were studied: storage at 40°F and 70°F and oscillating temperatures, presence or absence of light, wet vs. dry conditions, time, scarification of seed coats and the use of gibberellins (plant growth hormone.) Moist storage was accomplished by moistening a folded ScotTowel, sprinkling the seeds on one side, folding the other side over the seeds, placing in a Baggie, and folding the Baggie loosely several times, to minimize moisture loss. Several folded towels can be placed in each Baggie, but each should be marked with indelible marker pen. Each towel was removed at seven-day intervals and the number of germinated seeds counted. If any seeds began to decay, they were removed, and if decay became general, the remaining seeds were transferred to a fresh moistened towel. Dr. Deno did not feel that disinfecting the seeds to inhibit mold growth was necessary, as only dead seeds or empty seed coats appeared to be attacked.

According to the author, all seeds have one or more types of growth inhibitors which tend to prevent the seeds from germinating prematurely and which must be decomposed or removed before germination will occur. Many seeds need a period of dry storage, which varies greatly with the species. Too long a dry storage period results in non-viability. Fortunately, most common garden vegetables and annual flowers experience a high level of germination after dry storage for a period of six months. Swamp species usually require light for germination, desert species germinate best at 40°, and gibberellins seem to promote germination best in plants from environments of volcanic sand or gravel. Physical treatment, such as filing or sanding the seed appeared to be effective with nuts or seeds having extremely hard seed coats. Soaking in water did not appear to be effective, but, in some cases, rinsing was.

Lack of space prevented the author from using common names of plants, and interpretation was somewhat hindered by the author's use of the less familiar newer names of plant families instead of the more familiar older ones, e.g. *Apiaceae* for *Umbelliferae*, *Brassicaceae* for *Cruciferae*, and *Asteraceae* for *Compositae*. For the researcher, the author has included a two-page list of references.

Reviews continued on page 7

Overall, the book appears to be a valuable addition to the library of anyone interested in propagating wild plants from seed, and I recommend it highly for INPAWS members. The book may be ordered from Dr. Norman Deno, 139 Lenor Drive, State College, PA 16801.

The following book review was condensed from an article which appeared in The Indianapolis News several years ago
—Chris Carlson

Plain Ol' Charlie Deam

by Robert C. Kriebel, Purdue University Press,
West Lafayette, IN. Paperback, \$12.95.

A biography of Charles C. Deam, the legendary
turn-of-the-century Indiana botanist and author.

"Plain Ol' Charlie Deam: Pioneer Hoosier Botanist" describes Deam's meticulous scientific work as well as his down-to-earth humility, telling how he found his plants, wrote his books and lived his at-times eccentric life. The book's author is Robert C. Kriebel, editor of the Lafayette Journal and Courier.

Culled from Deam's prodigious writings and piles of letters and filled with interviews with Deam's friends and articles about him, the 200-page profile also contains 19 photos.

Charles Clemon Deam (1865-1953) endured boyhood years devoted mostly to farm work. He began his career as a druggist in Bluffton, Ind., only to later find his life's avocation - botany. Once started, he couldn't stop: he even financed his unique and valuable contributions to science from his drug-store profits. In a half century, first on foot, later by car, Deam traveled some 100,000 miles around Indiana, hunting plants and discovering 50, which some considered new to science.

Kriebel relates anecdotes about the self-taught Deam's seemingly unconventional but necessary work habits: after collecting specimens all day, he would eat a pork-and-beans supper cooked on his Coleman stove. Then he would write notes by the light of a lantern. Once the notes were written, Deam would curl up on a straw mattress in back of his Ford Model T to sleep while parked in a field somewhere. Sometimes his wife, Stella Mullins Deam, would accompany Deam on his "botanizing," as he called it.

Deam turned those late-night notes into volumes about Indiana trees, grasses, shrubs and finally, his landmark 1200-page book, "Flora of Indiana," published in 1940. His books were published with help from his many friends, his wife and Harriet Winch, his research and writing assistant.

Deam was a DePauw University dropout, but was awarded three honorary degrees: by DePauw, Wabash College and Indiana University.

The Deam mark on botany is indelible. Even the data that he and his wife collected from their Bluffton garden and arboretum are still useful to agricultural research, as are his weather records. In Jordan Hall of Indiana University at Bloomington, botany students still marvel over the 73,000-specimen Deam Herbarium and 3,000-volume library the Deams amassed.

Orchids of Indiana

Homoya, M. 1993. Indiana University Press,
Bloomington, IN. 276pp. Illustrated with 95 color
and 15 black-and-white photographs plus numerous
maps. \$34.95 clothbound.

Reviewed by Tom Potter

Mike Homoya states that he wrote this book with two goals in mind: "....to instill an interest in orchids and nature...." and to "....generate concern for and an improved performance of our earthkeeping responsibilities." He states that he tried to write a book that would appeal to both the popular audience as well as one that would be scientifically accurate. On both counts Mike receives an A+!

Orchids of Indiana contains many sections both useful and helpful. They include such topics as the history of orchidology in the state, reproduction, habitat and distribution both statewide and national. In addition, for those more technically inclined, there are numerous keys throughout the text to help with the separation of the complex orchid groups such as the *Corallorhiza*. At the beginning of each genus section, the author explains the name derivation and a brief description of the group. This explanation is followed by species accounts, each of which includes a map showing U.S. distribution, a state map indicating county records, and breathtaking photographs taken for the most part by Lee Casebere. (I consider Lee the finest wildflower photographer in the state.)

In the species accounts, Mike describes the plant, its range, habitat, and other pertinent information. The line drawings show flowering and reproductive parts in flawless detail. To aid with county locations, a full-page map of the state identifies each county.

Have you ever struggled with Latin names of plants as you try to impress your friends? Even this aspect of botany for the less informed is covered in *Appendix A*. A complete checklist gives the scientific name and a pronunciation guide for each species and also provides the common name. And since the author uses so many other plant names as he describes the habitat association, an additional appendix lists the common and scientific names of those plants as well.

Want more help? How about a readable glossary of botanical and orchid terms? See page 257. Want additional literature for reference work? Try page 263 onward for a list of one hundred and fourteen citations of literature. And of course, the complete index includes about everything in the book.

It seems to me that Mr. Homoya looked at most of the other plant books and decided to do one right. It is complete! It is hard to keep from over-praising this thoughtful (see the story of his first orchid sighting), beautifully illustrated work. When I first started reading the book, I had trouble putting it down. The style is comfortably readable and the text is clearly visible on the page. The color reproductions of Lee's outstanding photographs are perfect. Congratulations to all who had a hand in the production of this fine work, including The Indiana Academy of Science and the Indiana University Press.

The Indianapolis Greenways Project



The Indianapolis Greenways Project is "a comprehensive plan for the development of a recreational and fitness trail network linking over 100 destinations, including public land areas . . . along 14 river, stream and abandoned rail corridors in Marion County." The system will create more than 150 miles of trails to connect Marion County neighborhoods with existing parks, museums, schools and colleges, retail areas, and sports facilities. Greenways chairman Ray R. Irvin hopes to use the asphalt removed from city streets during repair and renovation to build trails 10 to 12 feet wide to accommodate pedestrian and bicycle traffic. Currently, only about 10% of the asphalt removed is able to be recycled into automobile roadways, so this would cut the costs of constructing trails and recycle more of the materials.

The plan will identify numerous areas of the corridor system as protected wildlife habitat and open space areas. Preserving the natural environment is one of the plan's most important goals, and the conservancy areas will provide an undisturbed habitat for native Indiana plant and animal species. Along the recreational sections, utilization of the extensive levy system for pathways will avoid disturbance of sensitive wildlife and wetland habitats, thereby creating functional trails that allow users to view these diverse natural environs without disrupting them.

An "adoption program" whereby groups or businesses can adopt a section is being considered. Currently, the adoption contract requires a commitment to keep the segment litter-free, to notify the appropriate parties if a problem arises, to make improvements to the area where possible, and in general to serve as a guardian for that segment.

It was recently reported that Marion County has a 20% deficit of park land per capita. As development continues to consume vast portions of what green space remains, the Indianapolis Parks & Recreation Department's chances of acquiring the lands needed to reverse the trend are diminishing. The Greenways system will conserve open space and naturally esthetic areas in our community. The major costs associated with trail development nationally have been land acquisition and engineering costs associated with more rugged terrain, something we are not faced with in this effort. The city owns the flood plain of all corridors, and along with additional land acquired through donation, easement and purchase, now owns 95% of the land needed for the Greenways Corridor project.

Over the past few years Indianapolis has made great strides toward planning the greenway corridors and trail network through Marion County. Thousands of volunteers annually have worked with the Department of Public Works, Indy Parks, and the Greenway Development Board to remove more than 700 tons of trash. There is a definite awareness and concern by our citizens for the health of our river and stream environments, and communities are taking notice of the many recreational opportunities afforded by clean river and stream corridors. This vision has been around for more than a century.

To add your name to the mailing list for the monthly *Greenways Newsletter* and other information concerning this project, or to arrange a presentation for your group or organization, write or call Ray R. Irvin, Indianapolis Greenways, 1426 W. 29th St., Indianapolis, IN 46208 (317) 924-7000 or (317) 924-7431.

Not-For-Profit Status Achieved

by Jean Victor, Treasurer

At last INPAWS has obtained a tax-exempt status with both the Federal and State governments!

Because we are a new organization, the IRS will not make a final determination for five more years. However, they have granted us a temporary 509(a)(1) status. At the end of our "probation" period, we must submit more information so that the IRS can determine if we have met the requirements necessary to become a permanent publicly supported organization.

During this probation period, donors may deduct contributions to INPAWS as provided in section 170 of the Internal Revenue Code. Bequests, legacies, devises, transfers, or gifts to INPAWS for our use are deductible (for tax purposes) as charitable donations. You may deduct only that portion of a gift for which you receive no consideration. In other words, gifts above and beyond your Student (\$10), Individual (\$18) or Family (\$25) membership dues may be deducted; or, if you purchased something through INPAWS, you could deduct any amount you paid above the value of the item.

INPAWS feels that it is important to provide a quality newsletter, but it is a major expense, and contributions are needed to continue providing this beautiful publication. We will, in the future, have other expenses such as a membership roster, publicity materials, and letterhead. These and other grand ideas and projects under consideration will need your support and generosity to help make them happen.

All contributions of \$75 or more will be acknowledged with a written and signed receipt — a new IRS requirement as of 1994. This applies to gifts to all not-for-profit organizations, not just INPAWS. If you don't receive a receipt within a reasonable time, you should contact the organization. There is a penalty for the not-for-profit organization which does not abide by this ruling.

If you would like to make a contribution to INPAWS, please direct your gift to INPAWS, c/o Jean Victor, Treasurer, 6911 Winona Drive, Indianapolis IN 46236. For more information, call me at (317) 823-1542.

Getting Started

Publications for the Native Plant Propagator

by Susan Nord

Frequently, it is difficult to locate commercial sources of native plants, particularly for local ecotypes of a desired species. One way to increase the availability of some native plants is through home propagation. Though becoming a good propagator does take practice and patience, there are some reference guides which can help to make the experience more rewarding. Although not written specifically for the Indiana gardener, these selected publications provide useful information and guidance in general plant propagation techniques as well as specifics on some of our natives.

An excellent guide for herbaceous plants is *Growing and Propagating Wild Flowers* by Harry R. Phillips, published by the University of North Carolina Press. It is good reading for any native plant enthusiast, especially those seeking information on growing woodland plants, and yields material on asexual and seed propagation, including seed cleaning and storage. The bulk of the book highlights specific requirements for propagation of several species native to Indiana including ferns. There are also suggestions on garden uses for wild plants.

For woody plant enthusiasts there are two handy publications. One specialized booklet is available from the University of Illinois Cooperative Extension Service entitled *Growing Illinois Trees from Seed*, Circular 1219. The booklet gives advice on seed collection, preparation, planting and subsequent care of seedlings. Information about individual species is presented in an easy-to-read chart form. The notes clearly list uses, habitats and problems associated with the trees. Though some plants listed in the circular are not native to either Illinois or Indiana, most of those mentioned are.

Another publication which is far more comprehensive, is *The Reference Manual of Woody Plant Propagation* by Michael Dirr and Charles Heuser published by Varsity Press. Those who are interested in other forms of woody plant propagation beyond seed production should consider reading this book. It literally covers all aspects of propagation "from seed to tissue culture." Though the authors have researched many plants from around the world, this guide has a great deal of information for the native plant fan. The sections on general propagation are excellent and would be most useful to anyone considering home propagation.

The key to propagation is patience and practice. For those who are beginners, start with more common plants. This will make your early success rates higher and your failures will not be so costly. Research the plant before propagation, so that you have an understanding of its likes and dislikes. Observe the habitats where it grows and prospers, and try to duplicate them in your garden to ensure future success. These books can be helpful in that study.

Sue Nord, a charter member of INPAWS, is a horticulturist and gardener at the Indianapolis Museum of Art. Her fledgling home garden is a disaster because she spends all her time at the IMA. She received BS and MS degrees from Delaware Valley College and Ohio State University, respectively.

A Historical Perspective on Roadside Vegetation

by Peter Harstad

When Thomas Lincoln brought his family (including young Abe) to Indiana in 1816, native vegetation adorned the few primitive roads that penetrated the wilderness.

By 1916, when Indiana celebrated a century of statehood, "devils' wagons" were rolling off assembly lines, not only in Detroit, but also in Indianapolis and other towns. The demand for spacious rights-of-way and smooth driving surfaces raised havoc with the remnants of native vegetation which had survived the farmers' plows and axes. Then came the demand for high-speed highways with no visual obstructions. Down came more trees, and out came mowers, and later, spraying equipment.

But there are exceptions to this tragic tale. One, of national significance, occurred in Indiana during the early days of motoring. In 1913, a group of powerful industrialists, including Carl G. Fisher of Indianapolis, attached the Emancipator's name to "The Lincoln Highway," which they promoted to become "a continuous improved highway connecting the Atlantic and the Pacific." The selected route, from New York to San Francisco, passed through Indiana along the approximate course of present U.S. Highway 30.

In 1921, leaders of the Lincoln Highway Association convinced the fledgling Indiana State Highway Department and Lake County to cooperate in the construction of an "ideal section" of highway between Dyer and Schererville, near the Illinois state line. They engaged the best highway and bridge engineers in the nation and also lured Danish-born landscape architect Jens Jensen, Chicago resident, to beautify the "ideal section."

Jensen, president of Friends of Our Native Landscape and a governing member of the Art Institute of Chicago, managed to convince those associated with the venture that "Trees, like human folks, have individual characteristics. Various kinds of trees differ.....as do shrubs and flowers." Backed by association leaders and "guided by nature," Jensen used native plants to landscape two miles of the Lincoln Highway just west of the intersection with U.S. 41.

He incorporated native plants and a footpath within the 110-foot right of way. "At one place, where the road passed through open prairie, native grasses, flowers, and an occasional cluster of Hawthorn or Crabapple were planted along the roadside. In other places, the road passed through upland prairie and groves of native Bur Oak and then crossed wood-

Perspective continued on page 10

ed ravines" (Robert Grease.) Jensen, who sometimes associated with Frank Lloyd Wright, also drew up plans for a 40-acre campsite and rest area in an oak grove on the south side of the highway. Already in 1922 he envisioned rest areas at regular intervals along highways.

Jensen promised that, at home in their own environs, the plantings "will give us joy and beauty in full measure." The Lincoln Highway Association also engaged Jensen to plan a 17-acre park near the west end of the "ideal section" where a grove of ancient oaks surrounded a natural amphitheater.

A 1921 monument touting "the finest section of road in the world" still stands on the south side of U.S. 30 less than a mile west of the U.S. 41 intersection. The claim was not hyperbole, as highway experts from near and far came to inspect the "ideal section," including Jensen's landscaping. Had Jens Jensen convinced each one of them to reintroduce native vegetation following road construction, Indiana and the nation would be more attractive today.

The author, a charter member of INPAWS, is executive director of the Indiana Historical Society. Documentation for the above article may be found in the State Highway Department records for the early 1920's in the Indiana State Archives. See also Robert E. Grease, "Jens Jensen: Maker of Natural Parks and Gardens," Johns Hopkins University Press, Baltimore, 1992.

Related Coming Events

Carolee's Herb Farm, Hartford City IN has a varied schedule of wildflower, herb and garden workshops and programs from spring through mid-November. For more information or to be placed on their mailing list, contact Carolee's Herb Farm, 3305 S. Co. Rd. 100W, Hartford City IN 47348.

Native Plants in the Landscape: a conference sponsored by Millersville University, Millersville PA, June 23-25, 1994. Purposes of the conference are: increase knowledge, propagation, cultivation and use of native plants in the Mid-Atlantic region; promote methods of land management and design that respect "sense of place" by preserving and restoring native species and natural processes; engender an appreciation of regionally appropriate landscapes; and, encourage the creation of sustainable landscapes that are harmonious for people and nature. Cost for the entire conference, double occupancy, is \$135. Millersville PA is about 70 miles west of Philadelphia. For more information contact Millersville University's Continuing Education Office at 717-872-3742.

Indiana Department of Natural Resources, Falls of the Ohio Interpretive Walks: Every weekend through October. Meet at the Interpretive Center lobby, 201 W. Riverside Drive, Clarksville, IN 47219 Fridays and Saturdays @ 1:00 p.m. and Sundays @ 2:00 p.m. For more information, phone 812-280-9970.

ACRES Wildflower Hike at the Bicentennial Woods: 80-acre old growth woods with a beautiful wildflower carpet. Sunday May 22, 1 p.m. ACRES is a not-for-profit organization dedicated to the preservation of natural lands in northeast Indiana. For more information, including the exact location

of the hike, contact them at 2000 North Wells, Fort Wayne IN, 219-422-1004.

ACRES hikes at Ropchan Wildlife Refuge and Ropchan Memorial, including a tamarack forest: June 11 @ 10:00 a.m. Bring your own lunch. Ropchan Wildlife Refuge is in Steuben County south of Fremont on SR 827. For more information, contact ACRES (see above).

Shirley Heinze Environmental Fund Hikes: There is a fee for these hikes and enrollment is limited. For more information please contact Barbara Plampin at 219-787-9438 or Sandy Henderson at 219-879-4725.

- Saturday, May 21, 10 a.m. to 1 p.m. at Little Calumet bottom lands and slopes; see shooting stars, wild hyacinths and some of the finest riparian vegetation in the Chicago region.
- Saturday June 4, 10 a.m. to 1 p.m. Dunes area. Virtually untouched woods, open savanna and extensive wetlands support False Heather, Bird's Foot Violet, Columbine, Lupine, Wild Iris and much more.

Project Learning Tree and Project Wild: A variety of environmental events designed for educators is scheduled from now through early November. Subjects include wetlands, conservation and 4-H science workshops. Locations are all over Indiana. For more information contact WILD & PLT, 6013 Lakeside Blvd. Indianapolis IN 46278, 317-290-3223.

Illinois Native Plant Society: Annual meeting near Danville IL, May 20-22. Program includes field trips, presentations, social times, banquet and more. The drive from Indianapolis is under two hours. The Illinois folks will allow Indiana Native Plant and Wildflower Society members to attend at the same rate as their members. For more information and to make a reservation, please contact Ken Konsis, at 217-662-2142 as soon as possible.

Eastern Native Plant Alliance: Annual Meeting, Winterthur, five miles north of Wilmington DE. Dates are August 26-27. Program to include discussions and field trips. For more information, contact ENPA, P.O. Box 6101, McLean VA 22106.

GREAT OUTDOORS Turfscapes

Professional Turf Management

Bill Brink

Owner

317/255-0166

P. O. Box 30062 • Indianapolis IN 46230

WildSide

- ❖ Ecosystem Restoration
- ❖ Native Landscape Design
- ❖ Park & Greenspace Planning
- ❖ Commercial
- ❖ Residential
- ❖ Public Sector Projects
- ❖ Industrial & Agricultural Lands

Brian D. Creek, CLP, President
1540 E. Cherry Lane
Bloomington, IN 47401
(812) 323-6013

INDIANA NATIVE PLANT AND WILDFLOWER SOCIETY MEMBERSHIP APPLICATION

Yes! I/we have been waiting for this exciting opportunity! Enclosed is my/our check for the following:

- | | | | |
|-------------------------------------|------|------------------------------------|-------|
| <input type="checkbox"/> Student | \$10 | <input type="checkbox"/> Patron | \$100 |
| <input type="checkbox"/> Individual | \$18 | <input type="checkbox"/> Sponsor | \$250 |
| <input type="checkbox"/> Family | \$25 | <input type="checkbox"/> Corporate | \$500 |

Additional Donation \$ _____

Total Enclosed \$ _____

NAME _____

TELEPHONE _____

ADDRESS _____

CITY _____

STATE _____ ZIP _____

Gifts Do Help

Your gift of any amount will be most appreciated. Donations above student, individual and family membership dues are tax-deductible to the extent provided by law. Gifts will be used to help further the programs and purposes of INPAWS, such as publishing a newsletter and providing services related to monthly programs.

Membership Categories

- Student:* For full-time students under the age of 22. Benefits include meeting notices, one vote on organizational issues, INPAWS newsletter, INPAWS membership directory.
- Individual:* Benefits are the same as for student.
- Family:* Includes head(s) of household and dependents. Benefits include meeting notices, INPAWS newsletter, INPAWS membership directory, and two votes on organizational issues.
- Patron:* Benefits are the same as for family, plus donation.
- Sponsor:* Benefits are the same as for family, plus donation.
- Corporate:* Benefits include newsletter, meeting notices, directory, special recognition, plus donation.

Please complete this form and mail, along with your check made payable to:

Indiana Native Plant and Wildflower Society
c/o Carolyn Harstad, 5952 Lieber Road, Indianapolis, IN 46208.

Please complete other side ➤

INPAWS MEMBER SURVEY

What would you like to see as the primary focus of this group?

I would like to serve on the following committee(s):

- | | | |
|-------------------------------------|--|---------------------------------------|
| <input type="checkbox"/> Programs | <input type="checkbox"/> Special Projects | <input type="checkbox"/> Newsletter |
| <input type="checkbox"/> Membership | <input type="checkbox"/> Publicity/Marketing | <input type="checkbox"/> Fund Raising |

I would like to help with:

- | | | |
|---|--|---------------------------------------|
| <input type="checkbox"/> Rescuing plants | <input type="checkbox"/> Leading field trips | <input type="checkbox"/> Giving tours |
| <input type="checkbox"/> Hospitality (refreshments) | <input type="checkbox"/> Helping with mailings | <input type="checkbox"/> Other |

Comments:

Renew your membership now for 1994!

..... Please complete other side



Native Plant and Wildflower Society
6106 Kingsley Drive
Indianapolis, IN 46220

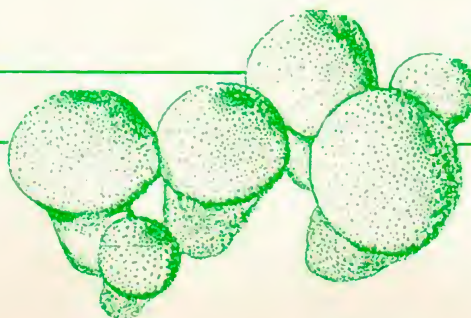
Bulk Rate
U.S. Postage
PAID
Indianapolis, IN
Permit No. 9892

Native Plant and Wildflower Society

NEWS

Volume I Number 3

Autumn 1994



Free for the Eating

by Dan Anderson

Late summer and fall, for the forager, is a time of gathering most of the larger fruits and virtually all the varieties of nuts produced by our walnuts, beech, hazel, hickory, and some oak trees. Since nuts are easily stored, we'll leave a discussion on their uses to a later issue, and concentrate on several more perishable items.

Purslane (*Portulaca oleracea*) is a well-known garden pest whose tiny yellow flowers produce enormous quantities of almost invisible seeds having incredible germinating powers. No matter how many purslane plants you pull, there will always be dozens of replacements coming up. The plant will continue growing until frost.

The more tender parts of the plant can be used in salads when mixed with other greens, preferably with a vinegar-type dressing to help offset the fatty taste of the purslane. Or, after a good washing to remove sand or grit, the tips can be boiled in water for ten minutes and served with butter and a touch of salt or salt substitute. Our favorite is a Euell Gibbons recipe modified by Sophia, my wife: Put the purslane pieces in the microwave for four minutes, then cut into small pieces and put in a blender until chopped up fine. Place in a mixing bowl, add an egg and mix thoroughly. Add Italian-flavored bread crumbs (or ordinary bread crumbs with oregano, basil, and Parmesan cheese), until all the liquid has been absorbed. Mix thoroughly, form into small balls, and bake in a moderate oven until brown on top. The purslane balls make excellent appetizers and are, to me, an adequate compensation for the presence of the plant in our vegetable beds.

Puffballs are considered one of the "safe" fungi, as they are known by most people and, with few exceptions, are edible. The most commonly-encountered ones are *Lycoperdon perlatum*, the small pear-shaped puffball, and *Calvatia sp.*, some of which may reach basketball size, although dinner-roll sizes are more common. To prepare a puffball, cut off the base and cut the fruiting body in half. If the flesh is white and

firm, it is usable. If not, discard. To prepare, remove the skin and slice about 1/4 inch thick, or just halve, for the smaller varieties. The slices can be served raw, French-fried, or incorporated in a casserole. The flavor is pleasant, but milder than that of many other mushrooms, and will be overwhelmed if the mushrooms are incorporated in a dish containing strong spices.

Papaw or pawpaw (*Asimina triloba*) is a tree found widely throughout Indiana and points south. The fruit, resembling a stubby green banana, is famous in Indiana folklore, but most Hoosiers of today have never seen one. Supermarkets don't carry them, probably for two reasons: the penetrating odor of the ripening fruit which would overwhelm even that of the potpourri department, and the large flat seeds occupying at least half the volume of the fruit. Papaw flowers appear before the leaves are out, and appear to attract few pollinators, so only a small percentage of the blossoms is able to produce fruit. The fruit that is produced is ready for picking in September. Trees may be shaken to dislodge the papaws,

Free for the Eating continued on page 2

Inside...

<i>The Friesner Herbarium of Butler University</i>	3
<i>Landscaping with Natives: Joe Pye Weed</i>	4
<i>INPAWS Calendar</i>	5
<i>Plant Auction Report</i>	5
<i>News from the Eastern Native Plant Alliance</i>	6
<i>Falls of the Ohio Flora</i>	7
<i>Wary Wildflower Buying</i>	8
<i>Going Native on Hoosier National Forest</i>	9
<i>Wildflower Photography Part 3</i>	9
<i>Membership Application</i>	10

or they may be picked directly from the smaller trees. If the skin is green, let them ripen by themselves a few days until the skin is mottled with black.



Papaws may be eaten in hand, but are most conveniently used in the form of

papaw pulp. By removing the seeds and skins, the pulp can be used immediately, or frozen in convenient packages for later use. The pulp can be substituted for that of zucchini in breads and other baked goods, or the following recipe can be used:

Blend 1/2 cup Crisco and 1 cup sugar. Add 1 cup mashed papaw pulp and 2 eggs. Mix well. Sift in 2 cups flour, 1 teaspoon baking soda and 1 teaspoon salt. Add 1/2 cup nuts if you like. Mix everything together, place in a baking pan, and bake 1 hour at 350° F.

Persimmon (*Diospyros virginiana*) is another Indiana tree bearing a fruit that is of delightful sweetness when ripe, but unbelievably puckery when just short of that state. Unlike papaws, persimmons will not ripen after picking and should not be picked from the tree unless they are very soft. The sweetest persimmons are those which appear to be well past their prime. The fruit keeps well, and persimmons can sometimes be found on the tree in late winter. As long as they are soft and not dried out, they are still edible.

The fruits make a tasty nibble, but the pulp is more easily handled. Squeeze it out using a colander or strainer, to remove skins and seeds. As with papaws, the pulp can be

packaged and frozen for later use. Two favorite uses of persimmons are in the forms of persimmon pudding and persimmon breads, recipes for which are given below:

Persimmon Pudding

Mix 2 cups persimmon pulp, 4 eggs, and 2 1/2 cups of sugar. In a separate bowl, sift together 2 1/2 cups flour, 1 teaspoon each of baking soda and baking powder. Add about 4 tablespoons of melted butter or margarine. Pour into baking dish and bake for about 45 minutes at 250° F. Raise temperature to 300° F and bake for another 45 minutes or until a knife blade comes out clean.

Persimmon Nut Bread

Mix together 2 cups flour, 1 teaspoon soda and 1/2 teaspoon salt. Blend together 1 1/2 sticks of margarine or butter and 1 cup sugar. Add 2 beaten eggs to the butter-sugar mixture, then add the dry ingredients and 1 cup nut meats in small pieces. Mix well, then place in buttered loaf pan and bake in 325° F oven until the top is firm when touched.

(Bear Wallow Books, of Nashville, Indiana, has published a booklet called "Old Fashioned Persimmon Recipes", which contains numerous recipes featuring persimmons. I assume it may still be available in some of the tourist spots in that community.)

Hope you have a chance to sample some of these goodies!

Dan Anderson and his wife Sophia are charter members of INPAWS who have enjoyed a wide range of edible wild greens, mushrooms, nuts, fruits and an occasional snapping turtle or muskrat over the past thirty years.

Indiana Native Plant and Wildflower Society Newsletter

©Copyright 1994

Published periodically by the Indiana Native Plant and Wildflower Society for members.

The Mission of the Indiana Native Plant and Wildflower Society

is to promote the appreciation, preservation, conservation, utilization and scientific study of the flora native to Indiana and to educate the public about the values, beauty, diversity and environmental importance of indigenous vegetation.

Officers 1993-1995

Chairman	Jeffrey Maddox	(317) 253-0659
Vice Chairman	Bill Brink	(317) 255-0166
Corresponding Secretary	Ruth Ann Ingraham	(317) 253-3863
Recording Secretary	Anne Wilson	(812) 342-6838
Treasurer	Jean Vietor	(317) 823-1542

Committee Chairs

Programs	Bill Brink	(317) 255-0166
Newsletter	Chris Carlson	(317) 257-5413
Public Relations	Hilary Cox	(317) 272-4938
Membership	Carolyn Harstad	(317) 257-9452

Newsletter Committee

Editor	Chris Carlson	(317) 257-5413
Co-Editor	Dan Anderson	(317) 849-3105
Science Editor	Kay Yatskievych	(314) 776-8501
Design & Layout Editor	Anne Wilson	(812) 342-6838
Mailing	Ruth Ann Ingraham	(317) 253-3863
Contributing Editors	Jeff Maddox	(317) 253-0659
	Bill Brink	(317) 255-0166
	Sue Nord	(317) 782-0763
	Jean Vietor	(317) 823-1542
	Barb Kaczorowski	(317) 877-0850
	Betty Trusty	(317) 831-6404

Submission of articles

Information for the newsletter is supplied by Society members and others interested in sharing information about Indiana native plants. Articles or drawings should be sent to the Editor, Chris Carlson, 6330 N. Park Avenue, Indianapolis IN 46220.

The Friesner Herbarium of Butler University

by Dr. Rebecca Dolan

Did you ever make a leaf collection? The Friesner Herbarium is a systematic collection of over 100,000 dried, pressed and preserved plant specimens. The Herbarium, third largest in the state, grew out of the personal collections of Dr. Ray C. Friesner, Professor and Chair of the Department, 1920-1952. Other Butler faculty along with many students have contributed plants through the years. The specimens, with their carefully documented labels, comprise a reference library on historical distribution, habitats, and timing of flower and fruit production. The collection's voucher specimens serve to verify plant identification.

Although the Herbarium contains plants from around the world, the collection emphasizes plants of Indiana. There are samples of 96% of the approximately 2500 taxa of native Indiana plants. Multiple specimens are present for most plants, providing more information than single drawings or photographs from books to assist in learning what a plant looks like. Most of our collections were made during the first half of the century and now constitute documentation of Indiana's historical vegetation. They also provide information on the habitat (e.g., woods, swamp, prairie) where plants were collected and would likely be found again.

The collection is of great value to professional botanists; information can be shared through a network of exchange and loan of specimens. Students, faculty, and staff from Butler's Department of Biological Sciences use the Herbarium as a reference. In addition, the Herbarium holdings are available to enrich teaching and laboratory exercises for students in biology classes.

Recent examples of use of the Friesner Herbarium include a local allergist who wanted to collect pollen from allergy-causing grasses and a USDA researcher who was looking for locations for *Cuphea*, a native plant with seed oil properties similar to coconut oil. Currently there is no domestic source of coconut oil. We helped him locate a site near Bloomington where the plant was collected in the 1930's. He was able to find the plant still growing on the same roadside. This summer we helped a junior high school teacher inventory plants

in a woods on the property of a new school building, identified shrubs in a Butler faculty member's yard, and helped several people from the community to identify wildflowers.

The Herbarium is open to the public by appointment. Call 317-283-9413 to arrange a visit. The staff can assist with identification of plants you bring in and can also help you to locate sites where plants you wish to find may grow.

Dr. Dolan does research in plant ecology at Butler University in Indianapolis and is currently working on a population biology of rare indigenous plants. She is Director of the University's Friesner Herbarium, oversees Butler's 5.5-acre prairie and has put together a census of campus flora.

Friesner Herbarium

BUTLER UNIVERSITY
4600 Sunset Avenue
Indianapolis, IN 46208

The Friesner Herbarium
Department of Biological Sciences
72 Gallahue Hall
Butler University
4600 Sunset Avenue
Indianapolis, IN 46208
Director: Dr. Rebecca Dolan
317-283-9413

Landscaping with Natives

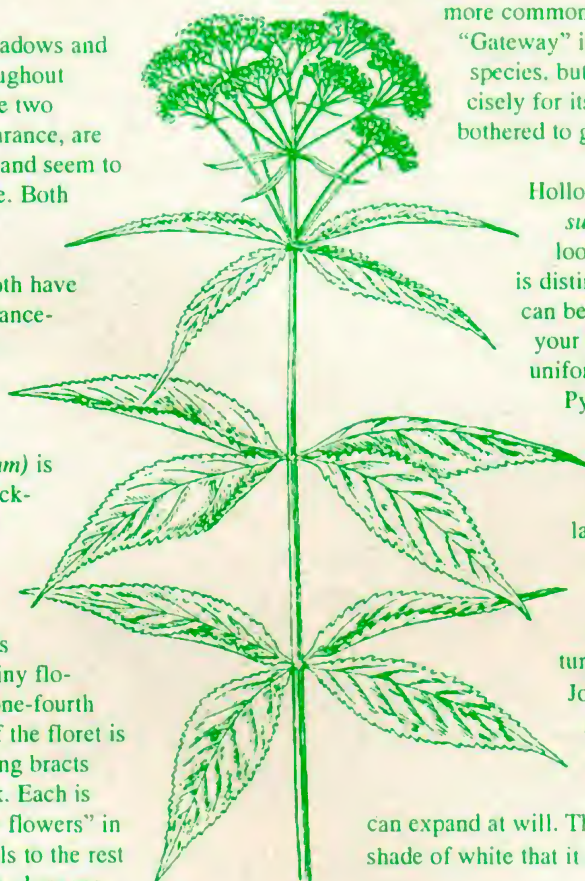
Joe Pye Weed

by Barb Kaczorowski

Legend has it that Jopi was an Indian medicine man who cured typhoid fever around New England with a concoction of *Eupatorium maculatum* or *E. purpureum*. Jopi, one assumes, became Joe Pye in the Yankee vernacular, and Joe Pye weed it has been ever since. And while the plant's historical pharmaceutical uses are legion, today we grow this handsome perennial not for the medicine chest but as a lovely addition to the late summer garden.

Joe Pye weed is native to moist meadows and woodland edges and openings throughout most of eastern North America. The two species differ only slightly in appearance, are virtually identical in garden effect, and seem to be thoroughly mixed up in the trade. Both are statuesque, attaining heights anywhere from four to ten feet, with rigid stems that never flop. Both have bold foliage, with rough-textured, lance-shaped leaves from three to twelve inches long, arranged in whorls around the stem.

Spotted Joe Pye weed (*E. maculatum*) is so called because the stems are speckled or blotched with dark red. The stem terminals as they approach the flower heads are often solid red. The leaves are borne in whorls of three to six. Flower heads are flat-topped, comprising many tiny florets of rosy mauve. Each floret is one-fourth to one-third inch long. The body of the floret is cylindrical, consisting of overlapping bracts which are an iridescent purple-pink. Each is topped by a cluster of mauve "tube flowers" in botanical parlance, tiny, fuzzy petals to the rest of us. The entire terminal flower head ranges from four to eight inches tall, expanding as the flower ages. Secondary heads open later from lower leaf axils. Spotted Joe Pye weed seems to predominate on calcareous soils and is the prevalent species in the northern part of the state, where it begins blooming around the third week in July and continues through August.



Sweet Joe Pye weed (*E. purpureum*) is so called because its leaves have a sweet - to some, vanilla-like - aroma when bruised. Its stems are green, and the leaves are arranged in whorls of three to five. Rather than flat-topped, its flower heads are dome-shaped and even bigger than those of spotted Joe Pye weed, often twelve to eighteen inches tall and two-thirds as wide. Their distinctive shape always reminds me of fireworks exploding against the sky. The flowers are a pale, frosty pink which is reminiscent of those lipstick colors Twiggy favored in the sixties. Sweet Joe Pye weed prevails on acidic soils. It begins blooming in my experience a little later than spotted Joe Pye weed, and often continues into

September. It is found throughout the state but is more common in the southern part. The cultivar "Gateway" is supposedly more compact than the species, but because I value Joe Pye weed precisely for its statuesque proportions, I haven't bothered to grow "Gateway."

Hollow-stemmed Joe Pye weed (*E. fistulosum*) has a similar distribution and looks much like Sweet Joe Pye weed. It is distinguished by its hollow stem which can be felt by pressing the stem between your fingers. Also, its stem is more or less uniformly purple, while that of Sweet Joe Pye weed is greenish.

Hardy ageratum (*Eupatorium coelestinum*) is another native and late-blooming member of the genus, reaching only about two feet in height, with flowers that look almost identical to the annual ageratum of grocery store flats. But unlike Joe Pye weed, it is aggressively stoloniferous, spreading rampantly especially in moist areas, and should be planted only where it

can expand at will. The cultivar 'Alba' is of such a dirty shade of white that it is to my mind worthless.

Joe Pye weed is easy to grow. Although native to moist places, it flourishes in the perennial border with average watering. Nor is it particular about soil; I've seen it growing in soil ranging from sandy to heavy clay. Of course, as for any plant, you'll get stockier, more vigorous growth by enriching the planting bed with ample organic matter. Joe Pye thrives with no care at all beyond occasional watering

during dry spells. In five years of growing the plant I've never had a disease or insect problem. But I have attracted droves of butterflies to my garden; I've counted as many as five on a single flower head.

Although some sources say to divide Joe Pye weed every three or four years, my clumps are beautifully vigorous without the central dieback that many perennials develop with time. Just be sure to allow plenty of room for it to attain its grand stature. (If desired, Joe Pye's height can be controlled a little by judicious pinching of terminals in early summer.) My plants are four feet in diameter after as many years. Should you want to divide it do so in early spring when new growth is just emerging. Alternatively, new plants are easy to raise from seed. Just plant the seed after it ripens in early fall. Seedlings will bloom in their second year.

Wherever you put it, Joe Pye weed will enliven your late summer garden year after year with its froth of frosty pink flowers and beautiful bold foliage, commanding attention but requiring none.

INPAWS Calendar

Trek to the Tefft Savannah Nature Preserve at Jasper-Pulaski Fish & Wildlife Area near Medaryville IN

Saturday, September 3, 1994

At the sand oak savannahs near the famous J.P. marshes, we'll see native grasses, goldenrod, asters, blazing star, standing cypress, winterberry, wild rice and more. There is good birding here also.

The field trip will be led by Tom Post of the Indiana Department of Natural Resources, Nature Preserve Section.

Meet at 10 AM at the Headquarters Building at Jasper Pulaski Fish & Wildlife Area. Or, meet at 7:30 AM sharp to carpool from the Indianapolis Museum of Art Greenhouse parking lot.

For more information call Bill Brink at (317) 255-0166.

Plant Auction Report

The second annual plant auction and sale by the society was held Saturday, June 4, in a shelter house at Garfield Park in Indianapolis under beautiful skies and a pleasant temperature.



***Auctioneer Rolland Kontak starting the bidding
for twinleaf (*Jeffersonia diphylla*)***

The promise of great variety, quality and rarity of native plant material became evident as members began arriving early with donations from their own collections. (We emphasize that no plants should be dug from the wild.) There were also donations of fine art and garden and nature-related items.

Again, auctioneer for the occasion was Rolland Kontak, a charter member of the society. Rolland artfully enticed bidders to vie for the wonderful specimens of unusual and rare, as well as familiar, native plants. There were bargains to be had also at the sale tables where plants were arranged by price: \$1, \$2 and \$3!

Tasty and elegant box lunches consisting of croissant sandwiches, julienned raw vegetables, fruit salad and snack chips were catered by Hansford Enterprises.

Many thanks go to those who helped make the second auction even more successful than the first: Rolland and Mildred Kontak and their friends, Mrs. Maci who lent her expertise as auction recorder, and Nick Lucas who cheerfully assisted in any area as needed.

Would you like to have plant auctions/sales regularly? Where else could you find in one place such a variety of native plants (including orchids, prairie grasses and unusual ferns,) camaraderie, good food, and an opportunity to further the mission of INPAWS?

We would like to hear from you, our members.

Please call Anne Wilson (812) 342-6838 with your ideas, or write to her at 14701 Bellsville Road, Nashville IN 47448.

News from the Eastern Native Plant Alliance

Membership in The Eastern Native Plant Alliance is open to organizations that promote or demonstrate native plant conservation in the eastern U.S. or southeastern Canada and to individuals committed to serving as liaison to an appropriate organization or audience.

The Indiana Native Plant and Wildflower Society is a member of ENPA and, as such, receives regular communications from them including a newsletter and notices of conferences, symposia and meetings. In future INPAWS newsletters, we will try to include some pertinent and timely topics and information received from ENPA. Following are a few items from the April, 1994 ENPA newsletter.

Invasive Species, Exotic and Native

White Flower Farm will not offer purple loosestrife after this spring, the current catalogue announces, because it has become a major pest along waterways throughout America, "crowding out native plants that don't share its vigor." To the nursery's credit, the statement adds, "Because marshy areas in the Northeast have been filled with *Lythrum* for as long as we can remember, we were slower than we should have been in taking the problem to heart."

Changes over the last several years in the catalogue's description of purple loosestrife provide a glimpse of the way this nursery's decision evolved. Throughout the late '80's "good for naturalizing" was given as one of loosestrife's merits.

For several years the description said, "Yes, there are wetlands in the Northeast where *Lythrum* is a common weed and some will stick their nose in the air at it for this reason." In the Fall, 1990 catalogue that statement was replaced by "Yes, there are wetlands in the Northeast where *Lythrum salicaria* is a common weed and it should not be encouraged by further planting." By 1992, the suggestion of defensiveness was gone, and the listing emphasized that the plants offered were not *L. salicaria* but sterile hybrids of *L. virgatum*, "no threat to wetlands."

Last year the catalogue, noting bans on the sale of *Lythrum* in some states, expressed the opinion that existing vast populations would "almost certainly overwhelm" local control efforts, and that the circumstances "were not occasion for excluding *Lythrum* from all gardens." It did warn, however, that the "self-sterile hybrids" offered "can and will interbreed with local populations if not deadheaded." Meanwhile the

number of states to which the varieties offered in the catalogue could not be shipped had grown from one, Minnesota, in 1989, to six in 1993 and eight in 1994, four in the Midwest, one in the Southeast, and three on the west coast.

Suburban Development Shapes Habitats

The proliferation of disturbance-loving native species as ever-widening suburbs move into once-wild areas is a threat that deserves more attention, some ecologists believe. A *New York Times* article by William K. Stevens (3/1/94), building on a report in the March issue of *Conservation Biology*, outlines some of the changes that enable species such as white-tailed deer, raccoons, crows, and Canada geese to take over "semi-natural" areas, crowding out many native plants and less adaptable native animals. Developers and suburban dwellers commonly reduce the tree canopy, remove dead trees, substitute mowed lawns and paving for brushy growth and introduce domestic animals. Adding structure, cultivated plantings and feeders, they also provide wildlife with new dwelling places and a readily-available year-round feast. Thus, unintentionally they shape the plant and animal community, and reduced diversity as a result is becoming evident.

Back-Yard Apothecary

Plant-based drugs to treat heart and circulatory problems are described in materials developed by the Endangered Species Coalition. Released for Heart Month in February, they are a part of the Coalition's work to help the public understand how "obscure" species benefit people and thus the value of protecting biological diversity. The source plant, medicinal use, and history are briefly discussed for eight drugs. If you'd like a copy, send a self-addressed stamped (29¢) envelope to Eastern Native Plant Alliance, P.O. Box 6101, McLean VA, 22106.

Go Native

The Natural Habitat Garden, a new book by Ken Druse, with Margaret Roach, uses text and stunning photographs to encourage gardeners to model home landscapes after the habitats natural to their own regions. It is "a plea to give back to our environment some of the beauty and pleasure it has given us," Druse writes. It can be a tool to help gardeners create niches, however small, that considered together can expand the realm of indigenous plants and animals." Besides chapters on grassland, dryland, wetland and woodland communities, the book includes information on plant sources and propagation, a discussion of integrated pest management, a listing of native plant societies and public gardens and suggested readings. (Clarkson-Potter, 1994; 256 pages, \$40.)

Falls of the Ohio Flora

by Bill Adams

Most people who come to Indiana's 20th State Park come to explore the world famous Devonian fossil beds, nearly 400 million-years-old. Located along the north bank of the Ohio River at Clarksville, the new State Park and \$4.9 million Interpretive Center feature perhaps the best exposed Devonian fossil bed in the world. In our recent one-year study, my wife and I discovered that the Falls of the Ohio is also home to some interesting and unusual flora.

Few areas in the US have been so closely examined by naturalists for so long as the Falls of the Ohio. In the early 19th century, famous naturalists came from all over the world to study and classify the unique fossils, birds, fish, and flora of the Falls of the Ohio. Among them were John James Audubon, Constantine Rafinesque, and Louis Agassiz. Dr. Asahel Clapp of New Albany extensively collected the flora at the Falls, sending specimens to such famous botanists as John Torrey, Asa Gray, and Thomas Nuttall.

At least two plants were first described from the Falls of the Ohio, although neither one appears to be found there today. *Psoralea stipulata* (a scurf-pea), was found on Rock Island and nowhere else in the world. Rock Island is now inundated. *Psoralea stipulata* was last seen in 1860 and is believed to be extinct. *Solidago shortii* (Shorts Goldenrod) inhabited dry open places at the Falls and was first described in 1842. It was last seen there in 1949, but has since been found at Blue Licks State Park in Kentucky.

Notable species at the Falls today include *Passiflora incarnata* (Passionflower) and *Diodia virginiana* (Buttonweed), both of which appear on the latest Indiana Department of Natural Resources list of rare or threatened species. *Bignonia capreolata* (Cross Vine), *Amorpha fruticosa* (False Indigo), *Salix caroliniana* (Ward Willow), and *Desmanthus illinoensis* (Prairie Mimosa) are all at or near their northern range limits at the Falls.

Also notable at the Falls is an abundance of natural food plants. This fact, along with the unique fishing and mussel

collecting opportunities presented by the Falls, no doubt helps to explain the presence of Native American people here dating back several thousand years BC. In our study we found nearly fifty plants known to have been part of the Native American diet, including such staples as *Helianthus tuberosus* (Jerusalem Artichoke), *Sagittaria latifolia* (Arrowhead), *Typha latifolia* (Cattail), *Amaranthus hybridus* (Amaranth), *Apios americana* (Groundnut), *Celtis occidentalis* (American Hackberry), and *Chenopodium album* (Lamb's Quarters). Other plants important to Native American people such as *Arundinaria gigantea* (River Cane) and *Juglans nigra* (Black Walnut) are also found.

The overall picture of the Falls flora can best be described as riparian. It can however be sectioned into at least seven distinct habitats, differing principally in moisture availability and degree of disturbance. We found species diversity to be greatest in the higher habitats, such as the Upper and Lower Woodlands and lowest in those near the waters edge, such as Rock and Marsh. Periods of prolonged flooding in these lower habitats place severe restrictions on what may grow there. Both extended submersion and physical disturbance by the strong river current are believed to be limiting factors. In spite of this, the Marsh habitat is surprisingly rich and contains several micro-habitats including sloughs, seep springs, and swamps. *Alisma subcordatum* (Small Water Plantain) and *Bidens cernua* (Nodding Bur Marigold), both uncommon in southern Indiana, were found here. A small, but distinct, rock and sand section was classified as a prairie by early naturalists. Grasses, including *Andropogon gerardii* (Big Bluestem) clearly dominate this area and trees are limited to a few stunted willows.

Wildflowers include species such as *Physostegia virginiana* (Obedient Plant) and *Apocynum cannabinum* (Indian Hemp).

The Ohio River corridor has long been recognized as a pathway along which many plants (both native and especially alien) have extended their ranges. In our initial survey we have identified a little over 200 species in three separate study areas, excluding grasses, sedges, ferns, and fungi. In years to come, as we continue to observe the Falls of the Ohio flora, perhaps adding additional study areas, we expect this number will grow.

Bill Adams is a naturalist at the Falls of the Ohio State Park in Clarksville. He and his wife Maggie have been active with the Sierra Club and The Nature Conservancy for many years and are property stewards at the Hardin Ridge Nature Preserve in Floyd County.



Wary Wildflower Buying

by Barb Kaczorowski

As advocates of growing native plants, some of us may be unwittingly contributing to their demise in the wild. How? By buying plants from nurseries that are selling wild-collected stock. Whether you're buying native plants from a local nursery or mail-order sources, *always* make sure that the plants you want are *nursery-propagated* before you buy.

Collecting native plants from the wild and selling them (cheaply) to local nurseries has been a long-standing way for rural families to supplement their incomes. While there are a few nurseries in the Southeast which "buy in" and "grow on" plants collected from sites about to be developed, it is virtually impossible to distinguish them from the larger number of nurseries which buy collected plants indiscriminately.

How can you be sure that your commerce in native plants is not contributing to the demise of wild populations? First, be especially wary of nurseries in the southeastern and southwestern United States. While there are some top-notch nurseries in these areas which specialize in propagating native plants, the vast tracts of public lands and low population in these regions mean fertile ground for collectors and "plant bandits." Inordinately low prices are a pretty good indicator that the plants offered for sale were collected.

Nurseries which are propagating native plants invariably state that fact prominently in their catalogues. Propagating many of these plants is an art as well as a science, and these nursery people are justifiably proud of their efforts and of the fact that they are not depleting wild populations. But a note of caution: read carefully. Don't be fooled by a nursery offering "nursery-grown" plants. Aware of the furor surrounding wild collection, some disreputable nurseries persist in buying collected plants. They grow the plants on in nursery containers, and then market them as "nursery-grown," in hope that the savvy consumer will be duped. If the catalogue wording provokes any doubt in your mind, call the nursery and ask to speak to their propagator. A few pointed questions should suffice to tell you whether the nursery is actually propagating native plants.

Mail-order plant retailers - companies which are just merchandisers of plants grown by other nurseries - are a bit harder to sort out. Your safest bet is to stick with those who state clearly in their catalogues that their plants are nursery-propagated.



Likewise, the origins of native plants sold by local garden centers can be difficult to ascertain. Ask to speak to the manager, or better yet, the owner about his or her native plant sources. While you can't expect them to give you their wholesale sources, be on the alert for defensiveness or obfuscation, both of which may be your clues that the plant's origin is either unknown or uncertain.

While nursery-propagated plants are almost always more expensive than collected ones, they're well worth the premium. Not only are you helping to protect wild populations with your willingness to pay for propagated plants, but you're getting a better value for your garden as well. Collected plants have notoriously poor survival rates. Collectors typically use rather crude and savage digging techniques, leaving many of the plants' roots behind. Then there are the many opportunities for the roots to dry out during transport from the site and on to the ultimate retail destination. All in all, the collected plant has suffered repeated traumas by the time it is shipped to you, and the stress of shipping is often the *coup de grace*. Nursery-propagated plants, on the other hand, have an intact root mass from being raised in a container. Their survival rate is many times that of collected plants.

Finally, make sure your protection of native plants extends beyond national boundaries. A case in point: the small bulb trade. Many of the small bulbs - anemones, cyclamen, species crocus and tulips, and countless others - have been collected from their native habitats to the brink of extinction in Greece, Turkey and surrounding nations. Reputable bulb companies have begun stating in their catalogues that they sell only nursery-propagated bulbs. Make sure you give your business to them, and only to them.

Barbara Kaczorowski is a landscape designer and horticulturist with a longstanding interest in native plants. A writer for Rodale Press and contributor to Horticulture magazine, she is co-owner with her husband Michael of Accent Gardens, a central Indiana landscape and nursery business.

Going Native on Hoosier National Forest

by Ellen Jacquart

Imagine Black-eyed Susans nodding in the wind and butterflies gracefully pollinating milkweeds and blazing stars. That's the picture you will see at a new kind of plantation planned for the Brownstown Ranger District of the Hoosier National Forest. The "plantation" is a native seed nursery to provide seed for various reclamation and restoration projects in south-central Indiana. It will be a joint effort with the U.S. Fish and Wildlife Service, Indiana Department of Natural Resources, local students, and other volunteers.

"We have a variety of restoration and reclamation projects for which we'd like to be able to use native species," said Bruce Slover, District Ranger for the Brownstown district of the national forest. He added that it would be desirable to restore a number of old fescue fields to a mix of native species, but there are no commercially available native seed sources located near south-central Indiana.

Nurseries in Illinois, Wisconsin and Missouri can supply the seed, but the national forest would prefer local sources, which may differ genetically from the same species grown in other areas. Non-local plants may not be well adapted to southern Indiana growing conditions and may not survive, or they may become too well adapted and displace local plants.

This native seed nursery will be the second in Indiana following the success of a similar nursery in the Jasper-Pulaski Fish and Wildlife Area. Phil Delphey of the United States Fish and Wildlife Service (USFWS) has been coordinating the state-wide effort, along with a number of other agencies, to provide native seed sources.

The Jasper-Pulaski nursery is intended to serve the prairie areas of northern Indiana, while the new nursery will serve the south-central area of the state. The location will be the Hardin Ridge area of Hoosier National Forest, just south of Bloomington. A forest clearing dominated by grasses and other flowering plants will be planted next year with species including little bluestem, partridge-pea, bush clover, tick trefoil and butterfly weed. Seeds will be collected this summer and fall from local populations; seedlings grown in greenhouses at area schools will also be used. Come spring, the students will assist in planting the seedlings in the plowed strips at the nursery.

If you would like more information about the nursery, or would like to collect or grow seed, please call Ellen Jacquart at the Brownstown office, 812-358-2675.

Ellen Jacquart is ecosystem team leader for the Brownstown ranger district.

Wildflower Photography Part 3

by Tom Potter

Even though summer is fast departing, there is still time to take some good photographs of the fall composites. To help you prepare, I am recommending some basic techniques which will help you create more pleasing images.

When the subject is a tall slender flower, as many of the composites are, try to use a vertical format for the image. The tall stem/flower will look more natural using this composition.

Watch out for cluttered photographs, those that have so much detail surrounding the central image that the subject gets lost in the totality of it all.

Try to avoid bright backgrounds. They overpower the subject, and the viewer's eye is attracted to them rather than to the subject.

Study the flower or flowers to find a suitable background. Sometimes using an f-stop of about f4 (wider open lens) will blur the background out of view.

With the taller fall flowers, photographing in the morning helps to avoid the breezy conditions that occur later in the day and which make photography of the taller flowers more difficult.

Keep in mind that the sun is at a lower angle as fall progresses. This means that your photos will be richer or warmer in color, a pleasing effect.

I hope you have hours of pleasure with the challenging fall flowers and your camera. If you have any questions, please let me know. I offer photography workshops on wildflowers, usually during the spring months. If you would like a schedule of future workshops, please write me a note at 4305 Belt Lane, Martinsville, IN 46151.

Tom Potter is a professional photographer living in Martinsville.

INDIANA NATIVE PLANT AND WILDFLOWER SOCIETY
MEMBERSHIP APPLICATION

Yes! I/we have been waiting for this exciting opportunity! Enclosed is a check for the following:

<input type="checkbox"/> Student \$10	<input type="checkbox"/> Family \$25	<input type="checkbox"/> Sponsor \$250
<input type="checkbox"/> Individual \$18	<input type="checkbox"/> Patron \$100	<input type="checkbox"/> Corporate \$500

Additional Donation \$ _____

Total Enclosed \$ _____

NAME _____

TELEPHONE _____

ADDRESS _____

CITY _____

STATE _____ ZIP _____

Gifts Do Help

Your gift of any amount will be most appreciated. Donations above student, individual and family membership dues are tax-deductible to the extent provided by law. Gifts will be used to help further the programs and purposes of INPAWS, such as publishing a newsletter and providing services related to monthly programs.

Membership Categories:

<i>Student:</i>	For full-time students under the age of 22. Benefits include meeting notices, one vote on organizational issues, INPAWS newsletter, INPAWS membership directory.
<i>Individual:</i>	Benefits are the same as for student.
<i>Family:</i>	Includes head(s) of household and dependents. Benefits include meeting notices, INPAWS newsletter, INPAWS membership directory, and two votes on organizational issues.
<i>Patron:</i>	Benefits are the same as for family, plus donation.
<i>Sponsor:</i>	Benefits are the same as for family, plus donation.
<i>Corporate:</i>	Benefits include newsletter, meeting notices, directory, special recognition, plus donation.

Please complete this form and mail, along with your check made payable to:

Indiana Native Plant and Wildflower Society

c/o Carolyn Harstad, 5952 Lieber Road, Indianapolis, IN 46208.

Please pass along this membership application to a friend!

Native Plant and Wildflower Society

6106 Kingsley Drive
Indianapolis, IN 46220

Bulk Rate
U.S. Postage
PAID
Indianapolis, IN
Permit No. 9892

Address Correction Requested

INDIANA Native Plant and Wildflower Society

NEWS

Volume I Number 4

Winter 1994



Free for the Eating

Some Notable Indiana Nuts (Edible, that is)

by Dan Anderson

When the weather turns cold, and the evenings become longer, some of us entertain the romantic notion of sitting before a cheerful fire in the fireplace, cracking nuts, and savoring the sweet taste of the delectable morsels. Indiana has its share of nut-bearing trees, the produce of which is generally ignored by us and left for the wildlings to enjoy.

One of my favorites is the shagbark hickory (*Carya ovata*) as well as the similar shellbark hickory (*Carya laciniosa*). Nuts from this tree are often plentiful in the fall and have a four-sectioned outer hull which can be removed easily with the fingers. The shell is relatively thin, and the meats can be readily removed from the inedible material which separates the two halves. For several good recipes using hickory nuts, see Gibbons' *Stalking the Wild Asparagus*. One problem I have found with nuts from wild hickory trees is the presence of a small fly or wasp, which consumes the nut meat during the formative stage and then drills or bites a perfectly round hole in the inner hull to escape. Naturally, any nuts with holes should be discarded, but I have found that as many as 80% of nuts which are apparently O.K. will hatch out one of the critters within two weeks.

The beech (*Fagus grandifolia*) is a common tree in Indiana whose main purpose in life is to crowd out all the other trees it can, then become rotten in its old age so that it can become a wildlife condominium. About the only time I've found beechnuts is when a large beech or branch of same has fallen, bearing the nuts with it. The edible portions are tasty enough, but so small that they are best left to any animals patient enough to cope with them.

Acorns were one of the staples of the American Indians, particularly those from trees of the white oak group (*Quercus alba*, et al.). The successful use of this product depended on extracting the bitter tannin present by means of leaches with hot water after pounding the nuts into a powder or paste. Our one attempt at using acorns was not successful - the meal had the slight bitter tang of tannin without any other taste that we could determine. I would be most grateful if one of you readers could tell me how to make acorns more palatable!

My personal favorite is the black walnut (*Juglans nigra*). Almost every sizable walnut tree in the fall has an accumulation of yellow-to-brown nuts lying underneath, which no one

Free for the Eating continued on page 2

Inside. . .

Letters to the Editor	3
Far-Flung Plants	4
Guidelines for Letters to the Editor	4
Growing Prairie Plants from Seed	5
Plant Nomenclature	6
Report on Tefft Savanna Trip	8
Input • Ideas • Images	9
Q&A	9
Multiflorae	10
Now Forming	10
Beauty is in the Eye of the Beholder	11
Landscaping with Natives-Winterberry Holly	12
Make a Difference!	13
Membership Application	14

bothers to pick up. These delicious nuts have two major drawbacks - an outer fruity hull which stains everything it touches a dark brownish black, and an industrial-strength shell which yields the sweet nutmeats only after a significant amount of persuasion.

One of the cutesy gift and kitchen supply stores in the Castleton Mall offered a fancy \$29.95 nutcracker which they claimed could open any kind of nut. I brought in a black walnut and challenged them to open it, using their device. After four tries, they gave up. Even those little carved Russians in soldier uniforms would probably suffer broken teeth or jaws trying to do the same. One of Nature's miracles is how a squirrel can gnaw two closely spaced holes in one end of the nut, and extract everything edible that lies within. Sometimes I think the squirrel injects digestive juice through its incisor fangs, then laps up the nut soup in the same way a spider feeds on her prey!



water out and replace with fresh. After the water has been changed about three times, the nuts can be handled without staining the skin. The nuts should be spread out to dry for about a week (where the squirrels can't get to them), then stored until needed.

A brutal assault with a hammer will result in all, or a portion of, the nut skittering underneath a bench or into a crack. I have found that putting them in a bench vise and screwing the clamp until the shell cracks is the safest way. To remove the nutmeats, I use a pair of diagonal pliers and snip away until the meats can be removed. For the less ambitious, black walnut meats can be purchased in the supermarket, but I have found that the healthful exercise involved in shelling the nuts compensates for the high caloric content of the delicious cakes and breads which can be made from them.

Have a good winter!

My favorite way of processing black walnuts requires a bucket, kitchen tongs, and a rawhide or rubber mallet. Pile the walnuts on the garage floor, patio, or driveway (not the living room carpet!) and smash the outer hull with the rubber or rawhide mallet. Pick out the inner shell with the tongs and drop it in the bucket, which has been filled with water. The nuts which float will have no meats and should be discarded. After the bucket is half filled with nuts, dump the colored

Dan Anderson and his wife Sophia are charter members of INPAWS who have enjoyed a wide range of edible wild greens, mushrooms, nuts, fruits and an occasional snapping turtle or muskrat over the past thirty years.

Indiana Native Plant and Wildflower Society Newsletter

©Copyright 1994

Published periodically by the Indiana Native Plant and Wildflower Society for members.

The Mission of the Indiana Native Plant and Wildflower Society

is to promote the appreciation, preservation, conservation, utilization and scientific study of the flora native to Indiana and to educate the public about the values, beauty, diversity and environmental importance of indigenous vegetation.

Officers 1993-1995

Chairman	Jeffrey Maddox	(317) 241-5953
Vice Chairman	Bill Brink	(317) 255-0166
Corresponding Secretary	Ruth Ann Ingraham	(317) 253-3863
Recording Secretary	Anne Wilson	(812) 342-6838
Treasurer	Jean Vietor	(317) 823-1542

Committee Chairs

Programs	Bill Brink	(317) 255-0166
Newsletter	Chris Carlson	(317) 257-5413
Publicity/PR	Hilary Cox	(317) 272-4938
	Katrina Vollmer	(812) 988-0063
Membership	Carolyn Harstad	(317) 257-9452
Plant Rescue	Kevin Tungesvick	(317) 354-2775
	Sue Nord	(317) 782-0763

Newsletter Committee

Editor	Chris Carlson	(317) 257-5413
Co-Editor	Dan Anderson	(317) 849-3105
Science Editor	Kay Yatskievych	(314) 776-8501
Design & Layout Editor	Anne Wilson	(812) 342-6838
Mailing	Ruth Ann Ingraham	(317) 253-3863
Contributing Editors	Jeff Maddox	(317) 241-5953
	Bill Brink	(317) 255-0166
	Sue Nord	(317) 782-0763
	Barb Kaczorowski	(317) 877-0850
	Betty Trusty	(317) 831-6404

Submission of articles

Information for the newsletter is supplied by Society members and others interested in sharing information about Indiana native plants. Articles or drawings should be sent to the Editor, Chris Carlson, 6330 N. Park Avenue, Indianapolis IN 46220.

Letters to the Editor

October 14, 1994

To the INPAWS Newsletter Editor:

Part of the mission of the Indiana Native Plant and Wildflower Society is to promote the preservation of flora native to Indiana.

Therefore, we believe it is important that members of INPAWS and the broader readership of this newsletter know about:

- the rapid deterioration of the plant communities in several of Indiana's state parks due to over browsing by white-tailed deer,
- the urgent need to follow the recommendations of the Deer Advisory Committee.

Following is a partial quote from a letter written by members of the Brown County State Park Deer Study Committee:

"A study committee was appointed by the Director of Natural Resources in March, 1992, to study the deer problem in Brown County State Park. This committee of 14 specialists issued a report to the Natural Resources Commission in February, 1993, after evaluating several alternatives and listening to Indiana citizens at two public hearings.

"The committee recommended an immediate reduction in the deer population through the most economical, efficient, and proven method, using citizens of Indiana who had experience in hunting deer. Six days of kill in each of three years were recommended to bring the deer herd within the carrying capacity of the Park's habitat.

"A park-wide vegetation study was completed in June of 1993, and it supported the committee's recommendation. The study found a significant negative impact was occurring throughout the Park. Plant species numbers at all sites examined were about one-half of the number of species found on similar sites outside the Park. Because of years of over-browsing, the woody sub-canopy of the Park, within reach of deer, has been reduced to a fraction of what it should be.

"The Natural Resources Commission, after reviewing the study committee's report, the vegetation study, and after holding two additional public hearings, recommended that the study committee's recommendations be implemented. However, because of political concerns, the Department of Natural Resources was only allowed to plan a one day/one year reduction program.

"After two court suits (one by an animal rights group and the other by a small group of Nashville business owners) were dismissed, a reduction of the deer population was held on December 4, 1993. Three hundred and ninety two deer were removed by 466 citizens of Indiana. This reduction program was completed with no accidents and with minor protest from an animal rights group. Over 3000 pounds of venison from

these deer were distributed to food kitchens. It is disturbing to note that the majority of the deer taken showed signs of severe malnourishment, another indication of gross over-population.

"While removal of 392 deer is a good start, it is not sufficient to solve this very serious ecological problem. The remaining deer in the Park will easily replace that number through reproduction [this year]. It is imperative that additional reductions take place [this year] and in subsequent years to keep the deer herd in balance with the Park's carrying capacity."

At the spring meeting of the Indiana Academy of Science, IAS members adopted a resolution on white-tailed deer in Indiana state parks. The IAS requests the governor of the State of Indiana to implement the recommendations of the Brown County State Park Deer Study Committee in state parks showing significant impact of excessive deer browsing.

We have ten acres of forested land about three miles north of Brown County State Park. We can provide anecdotal evidence in support of the deer committee from our observation of the destruction of undergrowth on our property to a fraction of what it was only two to three years ago.

Our state parks deserve to be protected from destruction by an overpopulation of deer. These parks were established so that all people could enjoy Indiana's beautiful second growth forests with the great variety of trees, shrubs, flowers and animals that live there. Unfortunately, since all the large predatory carnivores have been eliminated, the natural balance has been destroyed. Man must now play the role of hunter/predator if a natural balance is to be restored.

The white-tailed deer is not an endangered species. Indiana does not need deer parks. What we do need is a public forest teeming with an exciting diversity of native flora and fauna. To achieve this end the deer population must be controlled. According to a survey done by the Department of Natural Resources, 82 per cent of those surveyed in our state favor a continued culling until a balance can be achieved.

If you support the call for help from our competent, devoted, state park forest managers, write to:

Governor Evan Bayh
State of Indiana
206 State House
Indianapolis IN 46204

Michael Kiley, Chairman
Natural Resources Commission
402 W. Washington Street
Indianapolis IN 46204

Patrick R. Ralston, Director
Executive Office
Department of Natural Resources
402 W. Washington Street
Indianapolis IN 46204

We are convinced that if we want to allow the recovery of the natural flora and fauna of the Park before the destruction becomes irreversible, we must greatly reduce the population of deer as soon as possible.

Joseph and Ruth Ann Ingraham
INPAWS Charter Members

Far-Flung Plants

by David J. Hicks

In late July, I did some wetland botanizing in northern Indiana. Among the places I visited were the Nature Conservancy's Swamp Angel Preserve, and Nasby Fen in the Pigeon River Fish and Wildlife Area. At both sites, I found a plant that I hadn't seen previously, White Camas (*Zigadenus elegans*, in the family *Liliaceae*). A few weeks later, I was in the Colorado Rockies participating in a workshop at the Rocky Mountain Biological Laboratory. Although most species and many genera of the high-elevation flora were new to me, I was surprised to find my new acquaintance, White Camas, among them. It was even more surprising to contrast the habitat of this species in Indiana with that in the Rockies. In the Midwest, this is a plant of wet, calcareous sites such as the Nasby and Swamp Angel fens. In the Rockies, it grows on open, dry alpine slopes and sub-alpine meadows.

Further observation in the Rockies revealed several other plants familiar from the Midwest. One of the associates of the camas in both areas is Shrubby Cinquefoil (*Potentilla fruticosa*, *Rosaceae*). Like the camas, it grows in fens in Indiana, but is found on dry soils in the Rockies. More old friends turned up in sub-alpine forests in the Rockies; examples included False Solomon's Seal (*Smilacina racemosa*, *Liliaceae*), Starry Solomon's Seal (*S. stellata*), Red Baneberry (*Actaea rubra*, *Ranunculaceae*) and Cow-Parsnip (*Heracleum lanatum*, *Umbelliferae*).

I was initially surprised to see familiar plants in unfamiliar environments. How can the occurrence of the same species in distant locales be explained? The distribution pattern of a species is determined by many factors. Primary among them are the environmental tolerances of the plant, which include the range of light, temperature, soil moisture, and soil nutrients over which it can grow. One thing that the presence of these plants in areas as far-flung as northern Indiana and Colorado tells us is that the environments of both regions lie within the tolerance range of the plants. Although it is a bit surprising to find species that we consider wetland plants in dry sites in the Rockies, the plants may be responding to light levels and soil factors rather than to moisture *per se*.

History is a further factor involved in plant distribution patterns. All of the species mentioned have broad distributions in the northern part of North America, and most are circum-boreal, i.e. they are also found in the corresponding geographic regions of Eurasia. The ranges of northern species

were displaced by many hundreds of miles during the Pleistocene glaciation. Populations in the Appalachians, Midwest, and western mountains thus represent relict populations that have hung on in areas of relatively cool, moist climate.

Consideration of a longer time scale suggests that populations isolated for thousands of years might diverge evolutionarily. This is indeed the case for some of the plants mentioned. For example, *Z. elegans* of the Rockies is recognized as a variety different from that of the Indiana plants. Our plants belong to var. *glaucus*, while the yellower-flowered western plants are put into var. *elegans*.

David J. Hicks is an associate professor of biology at Manchester College. He does research and teaches courses on the ecology and evolution of vascular plants.

Guidelines

for Letters to the Editor

Recognizing that a statewide organization embodies diversity of opinion, and recognizing that INPAWS members may provide perspective on issues by sharing that diversity with others, INPAWS Newsletter welcomes well-written letters to the Editor which meet the following criteria:

- on issues and concerns relating to native plants of Indiana
- may be of interest to the membership
- consistent with the mission of INPAWS

It would be helpful if letters were provided on computer disk:

- In Microsoft Word 5.1 or 5.0 or 4
- On Macintosh compatible 3.5" diskette or
- On IBM 3.5 High Density (1.4 MB), saved as ASCII

If the above is not possible, articles should be typed, double spaced. Please be as concise as possible in stating your views and kindly include a brief statement identifying yourself (2-3 sentences).

Send your letter to INPAWS Editor, 6330 N. Park Avenue, Indianapolis IN 46220.

Letters will be printed in as timely a fashion as possible. Do keep in mind that this is a quarterly publication; the publication deadlines are listed elsewhere in this issue. There may be circumstances where the Newsletter committee declines to publish your letter, and we reserve that right.

Growing Prairie Plants From Seed

by Sue Nord

Many prairie species native to Indiana are useful in the home landscape and can be easily grown from seed. Included in this list are Purple Coneflower (*Echinacea purpurea*), Big Bluestem Grass (*Andropogon gerardii*) and many asters. Each of these may have seed available for collection into the month of November. It is not too late to collect from some of your favorites.

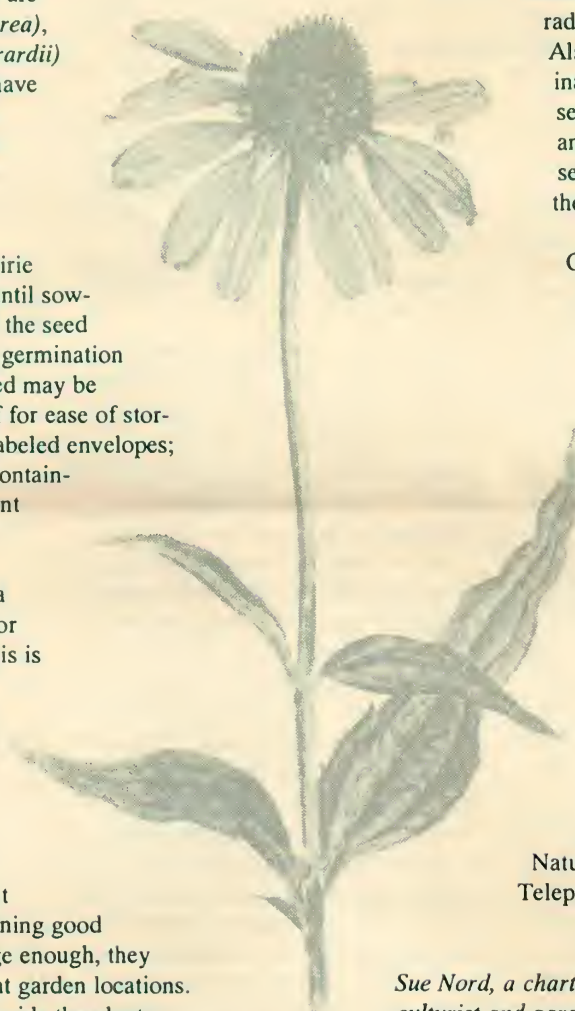
A general rule for seed storage of prairie plants is keep the seed cool and dry until sowing. This will prolong the viability of the seed embryo as well as prevent premature germination and mold growth. Once collected, seed may be "cleaned" or separated from the chaff for ease of storage or sowing. Place seeds in small labeled envelopes; then put the envelopes in a sealable container like a jar. The jar is most convenient for refrigerator storage and will keep the seeds dry in case of a spill. Most prairie seeds will require a cold treatment, called stratification, for consistent germination. In the wild this is accomplished by going through the winter. However, this is easily simulated by refrigerator storage. The length of time which seeds can be stored varies by species, but most prairie seeds will easily last a year. The seeds may be sown the next spring into flats or flower pots containing good potting mix. When the plants are large enough, they can be transplanted to their permanent garden locations. If grown in this manner, you may provide the plants ideal conditions and the outcome may be larger, more vigorous plants. However, this method is labor-intensive.

If you would like to duplicate nature, sow the seed into ground beds in the fall. Ground beds are spaces set aside in the garden or nursery where the seeds are sown directly into the soil. This allows the seed to receive the same kind of

treatment that it would in nature. However, there are drawbacks to this method. With reliance on weather, the germination may be sporadic, sometimes taking two years. Also, the amount of moisture may be inadequate or excessive. Animals seem to flock to freshly tilled earth and may disturb your carefully-sown seed. It may be necessary to block their access to the ground beds.

Of course not all prairie species are easy to grow. Even with more reliable species, there will be variability in germination rates from year to year. It is important to begin with the easier types and, as experience is acquired, expand into the plants which may require extra treatments, such as alternate heat and cold cycles, fire, or scarification of the seed coat by mechanical or chemical methods. For more extensive information on various propagation techniques for specific plants, please refer to *Prairie Propagation Handbook* by Harold W. Rock of the Wehr Nature Center in Franklin, WI. Telephone: (414) 425-8550.

Sue Nord, a charter member of INPAWS, is a horticulturist and gardener at the Indianapolis Museum of Art. Her fledgling home garden is a disaster because she spends all her time at the IMA. She received BS and MS degrees from Delaware Valley College and Ohio State University, respectively.



Plant Nomenclature

LATIN NAMES AND PRONUNCIATION

by Dr. Rebecca Dolan

Multi-syllabic Latin names intimidate a lot of students of botany. The names often seem imposing, but keeping a few pronunciation keys in mind can make dealing with them a lot simpler. Formal scientific names of plants and other organisms are given in Latin so that the language is international and unchanging. I can look at a paper or book in Japanese or Russian and still distinguish scientific names. My sister lives in Holland and while visiting her I bought a wild-flower identification book written in Dutch but illustrated with very nice photographs and Latin scientific names. I could therefore learn the plants and see their relationships with our North American flora.

Common names are important and often carry historical information such as medicinal uses of plants, but use of common names has some limitations. For example, very rare plants may not have common names, some plants share common names, some plants have different common names in different parts of the country. Use of scientific Latin names overcomes these problems.

Pronunciation of Latin is much easier than English. All letters are pronounced; there are no silent vowels or other letters. The main trick is knowing where to place the emphasis. Most words have the emphasis on the

next to the last or penult syllable; others may have the emphasis on the syllable before that. It is good to remember that many professional botanists pronounce the same names differently. It doesn't really matter.

Another trick to becoming more comfortable with Latin names is to think about what the Latin terms mean. Often, but not always, the term relates to some obvious feature of the plant. When a botanist describes a new species there are international rules of botanical nomenclature that must be followed. When a new name is applied it must be an original combination of genus and species names, but the specific epithet (or species name) chosen is entirely up to the investigator. Often the name reflects a physical trait of the plant but may also indicate where the plant was first collected, the geographic area where it grows. Or the name may honor the person who first collected it or someone who has done a lot of work with related plants. Personal names are 'latinized' and generally the genus and species names end with matching masculine (-us) or feminine (-ia) endings. Some terms are borrowed from Greek and 'latinized.'

The following list is culled from several references to indicate meanings of Latin terms that appear commonly in Indiana native plant names.

acaulis - stemless
acerifolius - maple-leaved
(maple = *Acer*)
alatus - winged
albus - white
alternifolius - alternate-leaved
americanus - of America
amplexicaulis - clasping the stem
angustifolius - narrow-leaved
annuus - annual
apetalus - without petals
aquaticus - aquatic
arborescens - tree-like
arvensis - of cultivated fields
aureus - golden

bicolor - two-colored
biennis - biennial
borealis - northern
brevis - short

caespitosus - tufted
calcareus - chalky, limy
campanulatus - bell-shaped
canadensis - of Canada
canescens - grayish, becoming gray
cardinalis - cardinal-red
ciliatus - ciliated, like an eyelash
clavatus - club-shaped
coccineus - scarlet
communis - growing in common
concolor - uniform in color
contortus - twisted
convolulus - climbing
cordatus - heart-shaped
crispus - curled
cuneifolius - wedge-shaped leaves

debilis - weak, disabled
decumbens - reclining
decurrens - extending downwards
deltoides - triangular
depauperatus - stunted
diffusus - loosely branching
digitatus - finger-shaped
distichus - two-ranked
divaricatus - spreading

echinatus - spiny
edulis - edible
effusus - loose-spreading
elegans - elegant
ellipticus - elliptical
erectus - upright
ericoides - heath-like

filiformis - thread-like
fistulosus - hollow, cylindrical
flabelliformis - fan-shaped

flavens - yellowish
flexuosus - flexible
foetidus - having a bad odor
foliosus - leafy
fragilis - fragile
fragrans - fragrant
fruticosus - shrubby

giganteus - very large
glabratus - smooth
glanulosus - glandular
glomeratus - dense clusters
glutinosus - gluey or sticky
gramineous - grassy
graminifolius - with grass-like leaves
grandiflorus - with large flowers
grandifolius - with large leaves

herbaceous - not woody
heterophyllus - with two or more
 shapes of leaves

hirsutus - hairy
hispidus - bristly
humilis - dwarf
hyemalis - of winter

laciniatus - cut, torn
lactatus - milky
laevigatus - smooth
lanceolatus - lance-shaped
lancifolius - lance-shaped leaves
latiflorus - broad-flowered
laxiflorus - loose-flowered
leucanthus - white-flowered
linearifolius - with long, slender leaves
luteus - yellow
lyratus - lyre-shaped

macrophyllus - large-leaved
maculatus - spotted
major - larger
marginalis - marginal
marilandicus - of Maryland
maritimus - growing near the sea
microcarpus - small-fruited
microphyllus - small-leaved
mirabilis - wonderful
mollis - soft
montanus - of the mountains
multiflorus - many-flowered

nervosus - nerved
niger - black
nitens - shining
nobilis - noble, or well known
noctiflorus - night-flowering
novae-angliae - of New England
noveboracensis - of New York
nudicaulis - naked-stemmed

nutans - nodding

occidentalis - western
odoratus - with an odor
officinalis - a formally recognized
 medicinal

orientalis - eastern
palmatus - palmate
parviflorus - small-flowered
parvifolius - small-leaved
patens - spreading
perennis - perennial
pratensis - growing in meadows
procumbens - prostrate
pubescens - with soft hairs,
 becoming downy

pumilus - dwarf, small
punctatus - marked with dots
purpureus - purple
pusillus - insignificant or very small

quadrangularis - four-angled
quadrifolius - with four leaves

racemosus - in racemes
radicans - rooting
recurvus - curved back
repens - creeping
reptans - crawling
resinosus - resinous
reticularis - net-like
rigidus - stiff
roseus - rose-colored
rotundifolius - round-leaves
rubrum - red

sativus - cultivated
scoparius - broom-like
sempervirens - evergreen
sessiliflorus - flowers without stems
sessilis - apparently stemless
silvaticus - pertaining to woods
simplex - unbranched
speciosus - beautiful
spectabilis - spectacular, visible
spinosus - with spines
stamineus - with prominent stamens
stoloniferus - with stolons
stramineus - straw-colored
strictus - stiff, upright, drawn together
stigosus - with stiff bristles
suffruticosus - shrubby
sylvestris - growing in the woods

tenuiflorus - slender-flowered
tenuifolius - slender-leaved
tenuis - slender, thin
ternatus - arranged in threes
tinctorius - used for dyeing

tomentosus - felty
tortuosus - twisted, winding
trifolius - three-leaved
tuberosus - with tubers

umbellatus - with umbels
uniflorus - one-flowered

velutinus - velvety
venosus - with veins
vernalis - spring flowering
villosus - with soft hairs
virgatus - twiggy
virginianus - of Virginia
vulgaris - common

zebrinus - zebra-striped

We can use these terms to examine names for some oaks. All oaks are in the genus *Quercus*. White oak is *Quercus alba*, scarlet oak is *Quercus coccinea*, and red oak is *Quercus rubra*. However, *Quercus nigra* is water oak and black oak is *Quercus velutina*, apparently because of velvety hairs on the under surfaces of the leaves.

References:

Plant Systematics by S.B. Jones and A.E. Luchsinger. McGraw-Hill Book Company, New York, NY. 1979.

Dictionary of Word Roots and Combining Forms by D.J. Borror. Mayfield Publishing Company, Palo Alto, CA. 1971.

Botanical Latin by W.T. Stearn. David and Charles, Newton Abbot, England. 1973.

Dictionary of Plant Names by A.J. Coombes. Timber Press, Beaverton, OR. 1985.

Dr. Dolan does research in plant ecology at Butler University in Indianapolis and is currently working on a population biology of rare indigenous plants. She is Director of the University's Friesner Herbarium, oversees Butler's 5.5-acre prairie and has put together a census of campus flora.

Report on Tefft Savanna Trip

by Rolland Kontak

About 20 nature-loving INPAWS members, led by DNR Regional Ecologist Tom Post, explored a variety of habitats at Jasper-Pulaski State Fish and Wildlife Area on Saturday, September 3rd.

The northern location encouraged some of our upstate members to participate. Their input during the day confirmed that interest in nature and conservation in northern Indiana is alive and well.

Tom began our hike in the savanna area of the Tefft Nature Preserve. Pausing every few feet, he would identify and elaborate on another native plant. A species list of almost 300 different native plants of the area was provided, and it would appear that a half dozen trips throughout the year would be necessary to see most of them. Fortunate indeed are those who live close enough to do just that.



Photograph by Bill Brink

A brown-bag lunch preceded an afternoon trip to the sloughs and marsh areas.

Being a creationist, I marvel at the plan that is evident in all of nature, and I feel that the Creator had to be pleased when He "saw that it was good"! This "plan" was further revealed as we reviewed the structural and floral changes of plants which grew in the damp and marshy areas. Binoculars were useful for viewing plants which could not be approached on foot and also for watching the bird life visible from the tower platform.

Thanks to Bill Brink, our program chairman, we located blooming Standing Cypress (*Ipomopsis rubra*) along the

roadside. Some believed it to be a native plant, but research has indicated that it is a non-native species introduced to Indiana. Celandine (*Chelidonium majus*) was also thought to be native, but it, too, has been shown to be non-native to Indiana. However, the beauty of these flowers should outweigh any prejudices of heritage.

Tom wove the role of game hunter into the narrative at several points. He especially bemoaned the damage to native plants by browsing deer in many of our nature preserves. Personally, I favor animal control and management, but I leave it to those wiser than I to determine if hunting, relocation, or biological controls are the best means of accomplishing the goal of population control. Given the strictures of tight budgets I believe I favor hunting. As a group we should, and maybe must, encourage management and control of browsing predators in some fashion.

On the return trip to Indianapolis, Bill Brink introduced us to Spinn Nature Preserve, which is maintained by The Nature Conservancy. The stellar find was a blooming Ladies' Tresses orchid, (*Spiranthes* sp.), which Chris Carlson found surrounded by 18-inch-high grass.

To reach Spinn Nature Preserve, go two miles north of Reynolds, Indiana on US 421, turn east on County Road 200N, and south when you reach Base Line Road. The preserve is on the west side of the road. Many seed stalks of Blazing Stars (*Liatris* spp.) were seen, suggesting that a visit in early August would be delightful.

The enjoyment and knowledge I gained from our leaders and my fellow hikers can hardly be duplicated by any other activity. I eagerly await our next gathering!

Rolland Kontak, charter member of INPAWS, was auctioneer at our first two plant sales and auctions. He is past president of the IMA Horticultural Society, and is actively experimenting with propagating a wide variety of our native plants at his south-side Indianapolis home.



Input • Ideas • Images

Articles and Artwork Encouraged

The Indiana Native Plant and Wildflower Society newsletter committee invites submission of articles, drawings and photographs for the quarterly publication.

Articles

- **Subject matter**

Should be pertinent to Indiana native plants (trees, shrubs, mosses, algae, wildflowers, weeds, fungi, etc.); in keeping with the mission of the Indiana Native Plant and Wildflower Society; of interest to INPAWS members.

- **Length**

No longer than 500 to 600 words; shorter articles welcome.

- **Format**

Wherever possible articles should be submitted in the following format:

- On Macintosh compatible 3.5" diskette in Microsoft Word 5.1 or 5.0 or 4; or,
- On IBM 3.5" High Density diskette (1.4 MB) in Wordperfect, Word 5 or Word 4

If this is not possible, articles should be neatly typed, double spaced.

- **Editing**

All articles are subject to editing by members of the committee, including review by our technical editor.

Line Art & Photographs

- **Subject matter**

Should be pertinent to Indiana native plants; in keeping with the mission of the Indiana Native Plant and Wildflower Society; of interest to INPAWS members.

- **Format**

Black & white photographs preferred. Color images should have good contrast for best reproduction. Line art should be clean, crisp and free of dirt and smudges.

General

- **Inclusion**

The final decision to include or not include your submission rests with the newsletter committee. In some cases, timeliness of subject matter or available space may dictate using the material in a later issue.

- **Credit**

Authors and artists should include a brief (two to three-sentence) biographical statement for inclusion with the article or image.

General (continued)

- **Send to**

Chris Carlson, INPAWS Editor
6330 N. Park Ave.
Indianapolis IN 46220

- **Deadlines**


- April 15 for the Summer issue
- July 15 for the Autumn issue
- October 15 for the Winter issue
- January 15 for the Spring issue

- **Return of materials**

Diskettes and artwork will be returned if a self-addressed, appropriate mailing package or container with sufficient postage is provided.

- **For more information**

Chris Carlson	317-257-5413	Editor
Dan Anderson	317-849-3105	Co-Editor
Anne Wilson	812-342-6838	Layout Editor



Got a knotty native plant question

If something about native plants has been puzzling you, send your question to the editor of the INPAWS Newsletter. We will make every attempt to have your puzzlement addressed by someone who has some expertise in that area, although we cannot guarantee a reply. We will print appropriate questions and responses of general interest to INPAWS membership in a *Question and Answer* column. The deadlines listed elsewhere in this issue may not apply since time must be allotted for obtaining a response. Send your question to:

INPAWS Editor
6330 N. Park Avenue
Indianapolis IN 46220.

Multiflorae

According to Julie Akard of Bloomington, you can order Charles Deam's *Trees of Indiana* by sending a check for \$19.00 (\$16.00 for the book and \$3.00 for shipping) along with your name and address to: Historic Hoosier Hills, P. O. Box 407, Versailles IN 47042. For more information, call Julie at 812-334-3110.

According to the October 19, 1994 *Northside Topics* (A Greater Indianapolis north side weekly), a woman from Marion County won a pick-up truck worth \$20,000 for the following suggestion: So, you want a perfect green lawn, but your blue grass is turning brown, and your water bill makes you see red? Now is the time to begin replanting your yard with wildflowers, grasses and ground covers that grow naturally in your part of the country. (Maybe the lady would share her truck with the rest of us who have been doing that for years!!?)

Well.....others have thought of it too! A book entitled *Redesigning the American Lawn: A Search for Environmental Harmony* (Yale, 1994) traces the history of the lawn from its beginnings to the contemporary ideal which the authors, F. Herbert Bormann *et al.*, call the "Industrial Lawn," with its high costs in loss of biological diversity, expended energy, escaped chemicals, and aesthetic poverty. As one alternative they suggest a "Freedom Lawn," based on choosing appropriate grasses and mowing less frequently and not as short, which results in substantial maintenance savings. They are even more enthusiastic, though, about the "New American Lawn," an option that is not a traditional lawn at all but regional native vegetation, imaginatively used and allowed to display its distinctive appeal, with the additional charm of plentiful birds and other wildlife. (*Eastern Native Plant Alliance Network News*, July, 1994)

The thesis that biologically diverse ecosystems are more stable is supported by a study reported in *Nature Conservancy* (July/August). Halfway through an 11-year vegetation study of an oak savanna in Minnesota, the area was hit by record drought. Of 207 study plots, those with high numbers of plant species suffered the smallest losses in mass during the drought and showed the fastest recovery afterward. Of the four main study areas, the most natural, the never-farmed, never-logged virgin savanna, showed the greatest diversity and resilience. (*ENPA Network News*, July, 1994)

An interagency Federal Native Plant Conservation Committee is the goal of a Memorandum of Understanding signed earlier this year by seven Federal agencies and five non-governmental cooperators. This action commits them, and others that may sign later, to working toward a coordinated, national native plant conservation program of public education, research, conservation action, information collection and exchange and international programs. The Federal agencies that signed, which together manage more than 600 million acres of public land, are the US. Forest Service, Soil Conservation Service, Agricultural Research Service, Bureau of Land Management, Fish and Wildlife Service, National Park Service, and National Biological Survey. Those outside the government are The Nature Conservancy, Center for Plant Conservation, National Association of Conservation Districts, Soil and Water Conservation Society and Society for Ecological Restoration. (*ENPA Network News*, July, 1994)



Now Forming: Plant Rescue Committee

Help is needed in:

- Setting policy
- Locating plants in peril
- Digging plants
- Finding new homes for the rescued plants
- Keeping records

Please contact:

Kevin Tunesvick (317) 354-2775 Anderson
Sue Nord (317) 782-0763 Indianapolis

Beauty is in the Eye of the Beholder

by Bob Frantz

Beauty is in the eye of the beholder—indeed it is. As I look out of the windows of our den, I observe a scene which I am sure would not rate as beautiful to most. But to some of us who are addicted to woodlands just the way they have evolved, beauty is certainly there.

It is a chilly, cloudy day in January. The ground is white with snow and the trees are bare, with the exception of some small beeches and oaks which retain some leaves all winter. I see a large, sturdy beech which has sheltered generations of raccoons and squirrels. I see our three favorite trees at the edge of our small yard: a white oak, a red maple and a pignut hickory, all of which rise into the sky nearly a hundred feet. I see many small trees and shrubs which are struggling for existence among the larger ones. I see a tangle of wild grape vines, some of which swing free from branches high up in the larger trees and I'm still uncertain as to how they reached those lofty branches. I see lots of dead wood on the ground, some from fallen dead limbs and even an occasional tree which has given up on life before its normal life span is over. I see downy and hairy woodpeckers and nuthatches searching for food on tree trunks and branches and juncos doing the same on the ground.

This certainly is not the description of a spectacular picture, and yet on this dreary and slightly foggy afternoon I see mystery. I see nature evolving. I see beauty. I am fully aware that others find little beauty here, but do find it in modern art, in rock music, in elusive poetry and in many other things that I am unable to comprehend.

A few years ago we took a visiting relative on a very brief auto trip here at Wildwood. There are not many places where we can drive, but there is a path to a field which we call Lost

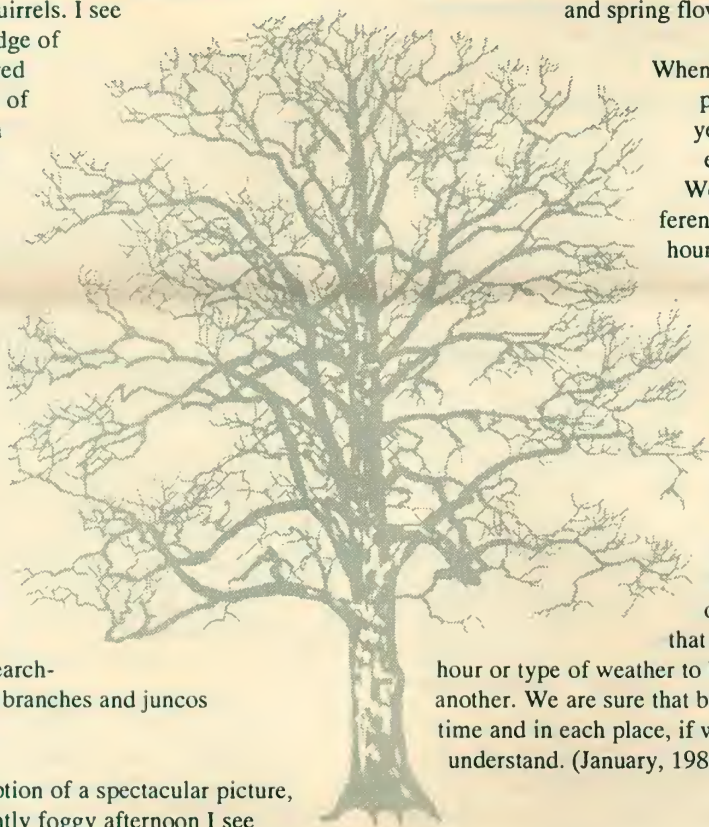
Acres which can accommodate a car. As we passed through thick woods, his comment was, "This would be a pretty nice woods if it was cleaned up." I don't quarrel with those who see more beauty in a city park with trimmed trees, mowed lawns and flower beds than in a primitive woods. I like parks too, but I don't want all woodlands made into city parks. I believe more of our woodlands should remain un-logged, un-farmed and un-cleaned. I want them to remain a hospitable and safe home for squirrels, birds, deer, butterflies, raccoons, possums, groundhogs, chipmunks, mice, turtles, frogs and spring flowers.

When we walk our trails, as happens most days of the entire year, we see unlimited variety, even on the same trail.

We know that each day is different from the last, even each hour. We don't always see the difference, but it is there for the careful observer to see.

Morning hours are different from noon or evening. Moonlight nights are different from black ones. Cloudy, rainy days are not the same as those that are bright and sunny. Cold days and nights are quite different from warm ones. We are not at all sure that we believe one season, day,

hour or type of weather to be better or worse than another. We are sure that beauty is to be found at each time and in each place, if we look for it and seek to understand. (January, 1989)



Bob Frantz and his wife Alice are dedicated to preserving a 90-acre "wasteland" as much as possible in its natural state. Named Wildwood, it is a portion of a former family farm near Silver Lake, Indiana, and is comprised mostly of woodlands and swamps. This essay comes from Bob's collection of writings entitled If You Stand Very Still...Thoughts and Experiences from the Woods.

Landscaping with Natives

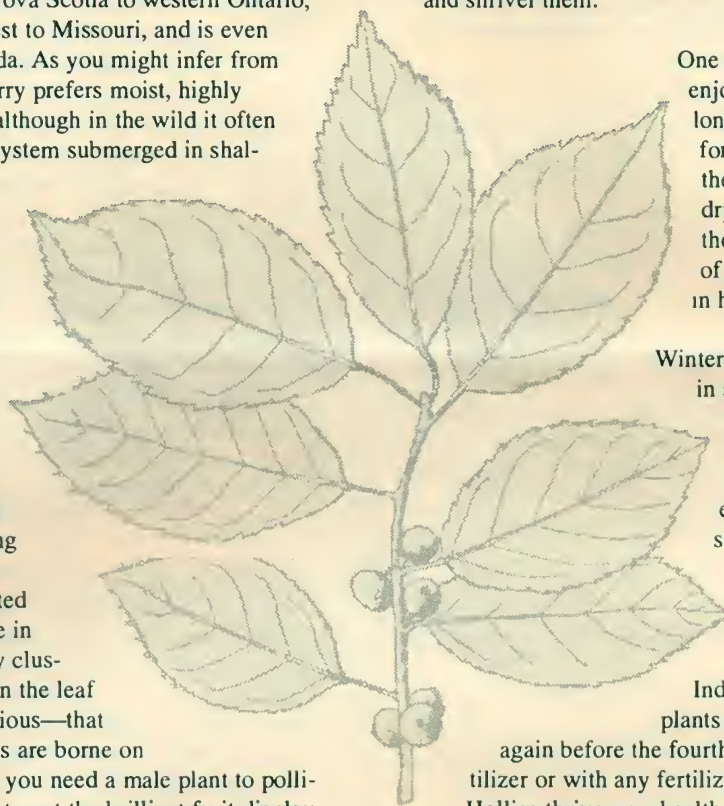
Winterberry Holly

by Barbara Kaczorowski

Imagine black twigs covered with brilliant scarlet berries against a sparkling white, snowy background. That's the picture painted by the aptly named winterberry holly (*Ilex verticillata*) on a crisp winter day. No other plant can match the sparkle of this lovely native shrub in the short, cold days of winter.

Hardy from Zones 3 through 9, winterberry holly is a denizen of swamps from Nova Scotia to western Ontario, south to Wisconsin and west to Missouri, and is even found as far south as Florida. As you might infer from its native habitat, winterberry prefers moist, highly organic, acidic soils. And although in the wild it often grows with its entire root system submerged in shallow ponds, in your garden it will do fine with average moisture. It will grow in full sun to partial shade, with fruiting being heaviest in sun.

Although slow growing, winterberry holly is ultimately a vase-shaped shrub, six to ten feet high with an equal spread and slowly suckering from the base. The dark green, elliptic, finely serrated leaves unfurl relatively late in spring, followed closely by clusters of tiny white flowers in the leaf axils. Winterberry is dioecious—that is, male and female flowers are borne on separate plants. Therefore, you need a male plant to pollinate your females in order to get the brilliant fruit display which is the reason for growing this shrub. These fruits, about 1/4 inch in diameter and slightly larger on most cultivars, ripen to the purest scarlet in September. Then, for a brief time, you have a handsome green, leafy shrub adorned with bright red berries. But in October the leaves of most winterberry hollies turn yellow, changing the tableau to one of flaming colors. By November, all the leaves have fallen from this deciduous holly, fully revealing the brilliant berry display that gives this shrub its common name. Many cultivars fruit so heavily that the branch tips bend outwards with the weight of the berries.



How long this cheerful display persists depends entirely on two factors: birds and temperature. On our property an abundance of wild areas as well as a great diversity of cultivated plants (not to mention feeders) provide winter-resident birds with a veritable smorgasbord. The winterberries persist throughout the winter, being taken only as a last resort in very early spring. On many suburban properties, the berries don't even make it till Christmas without being gobbled. In fact, my mother reported that this year the berries no sooner ripened than the robins arrived to strip them from the branches so vigorously that the entire shrub swayed with their efforts. It's sort of a mixed bag: we all like feeding birds, but it would be nice to look at those fruits on dreary January days. Should the birds spare your berries, they will persist until spring. Below-zero temperatures, however, will blacken and shrivel them.

One way to ensure that you get to enjoy the sparkling red fruits for a long time is to cut some branches for indoor arrangements. Store them without water; the fruits will dry and persist very well, holding their red color for years. Branches of winterberry holly are gorgeous in holiday decorations and wreaths.

Winterberry holly can be transplanted in spring, summer, or fall either balled-and-burlapped or from a container. Just make sure to keep new plants evenly moist, especially through their first summer. Leaf mold is a great amendment for the planting area, and the incorporation of some sulfur to lower the pH is usually necessary in the Indianapolis area. Fertilize your plants in early and late spring and

again before the fourth of July with an acid-based fertilizer or with any fertilizer with a higher first number.

Hollies thrive on a healthy dose of nitrogen. Organic growers can use blood and/or cottonseed meal incorporated into the soil around the plants.

Several factors are important to consider in siting your winterberry hollies. Pick a spot where you can see them frequently from a window, since they look their best in the winter. Try to situate them so that they will be framed by a snowy rather than by a dark background. If you have a moist or boggy area in your yard where grass won't grow well, consider filling it with a mass of winterberries, which will thrive on the excess water. Remember to include a male plant

(which won't bear fruit) positioned modestly behind the flashy females. And plant winterberries in a group if you can; their beauty finds strength in numbers.

Refrain from using winterberry holly as a foundation plant. This area is almost always alkaline from the concrete and mortar used in the house foundation; acidifying it long enough for your winterberry to thrive without chlorosis will prove to be a losing battle. If you long for the wintry sparkle of red fruits against your house, use possumhaw holly (*Ilex decidua*) 'Warren's Red' instead. This fine, native deciduous holly is very tolerant of alkaline conditions.

While native stands of winterberry holly are certainly to be appreciated and preserved, choose named cultivars when buying plants for your home landscape. These will provide you with a much better show of both bigger and more numerous fruits. Additionally, at three to five feet, cultivars like 'Afterglow' and 'Cacapon' are more compact than the species. Good full-sized cultivars include 'Winter Red,' (a selection made by Bob Simpson, of Vincennes, Indiana), 'Sparkleberry,' and 'Xmas Cheer.' Should you prefer yellow fruits to red, choose 'Auranticum' or 'Chrysocarpa.' Yellow-fruited forms show off to best advantage situated against a dark background of evergreens.

I can think of lots of great landscape companions for winterberry holly. In a moist but sunny area, imagine a tableau of perhaps two or three bald cypress (*Taxodium distichum*), three to five clump river birch (*Betula nigra*), and five to seven winterberries. Spring would feature the finely feathered, lime-green emergent cypress foliage and the delicate new birch leaves. Fall would find the russet tones of the deciduous cypress needles echoed by the cinnamon colors in the birch bark, and fired by the brilliance of the holly berries. Fragrant early summer flowers and beautiful red fall leaf color could be added by a grouping of swamp azalea (*Rhododendron viscosum*).

Digressing from this palette, winterberry holly looks terrific in combination with any of the maiden grasses (*Miscanthus* species and cultivars), almost all of which are very wet-tolerant. It can make a quite tolerable screen, and can enliven any mixed shrub border through the winter months. But regardless of the company it keeps, winterberry holly in your garden will take the sting out of cabin fever.

Barbara Kaczorowski is a landscape designer and horticulturist with a longstanding interest in native plants. A writer for Rodale Press and contributor to Horticulture magazine, she is co-owner with her husband Michael of Accent Gardens, a central Indiana landscape and nursery business.

Make a Difference!!

by Carolyn Harstad, Membership Chair

We've come a long way!

On a blustery winter day in March, 1993, four individuals met to sow the seeds for a new society. This tiny beginning was furthered by a group of nearly 20 who set about naming the new society, writing a mission statement, constitution and bylaws and electing temporary officers. Now, more than a year and a half later, the Indiana Native Plant and Wildflower Society boasts more than 229 members (of these, 179 are Charter Members). It is obvious that there was a real need for this statewide organization dedicated to our native plants.

Our first annual meeting was a casual affair, held in August, 1993, at Marian College *en plein air*. The 1994 annual meeting was a much more structured event, with workshops, lecturers, panel discussions, an evening buffet and a nationally acclaimed expert on prairies as our banquet keynote speaker.

We have had several fantastic field trips during 1994, and plans are being made for more field trips, special programs and sharing more information about using native plants and wildflowers in our landscapes.

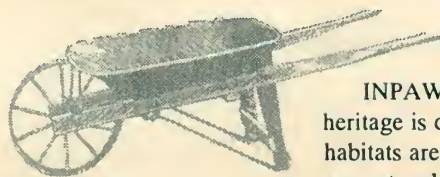
INPAWS Newsletter is a membership benefit.

This newsletter is one the benefits of dues-paying members. In order to promote membership and reach as many as possible, we have sent the newsletter to all former and prospective members as well as to paid members.

This could be your last newsletter!!

Check your mailing label for the date of your current dues expiration. Only those whose labels are marked 1995 will continue to receive the newsletter after January 1, 1995. If your label is dated earlier than 1995, or if you have put off joining, please send your dues today along with the membership form. Act now so you won't miss the next newsletter!

Help us grow and make a difference.



Also, we ask your help in spreading the word about

INPAWS. Our wildflower heritage is disappearing as native habitats are destroyed. Help us promote education and information through our state organization. Our environment is fragile. Together, we can make a difference.

INDIANA NATIVE PLANT AND WILDFLOWER SOCIETY

MEMBERSHIP APPLICATION

Yes! I/we have been waiting for this exciting opportunity! Enclosed is a check for the following:

- | | | | | | |
|-------------------------------------|------|---------------------------------|-------|------------------------------------|-------|
| <input type="checkbox"/> Student | \$10 | <input type="checkbox"/> Family | \$25 | <input type="checkbox"/> Sponsor | \$250 |
| <input type="checkbox"/> Individual | \$18 | <input type="checkbox"/> Patron | \$100 | <input type="checkbox"/> Corporate | \$500 |

Additional Donation \$ _____

Total Enclosed \$ _____

NAME _____

TELEPHONE _____

ADDRESS _____

CITY _____

STATE _____ ZIP _____

COUNTY _____

Gifts Do Help

Your gift of any amount will be most appreciated. Donations above student, individual and family membership dues are tax-deductible to the extent provided by law. Gifts will be used to help further the programs and purposes of INPAWS, such as publishing a newsletter and providing services related to monthly programs.

Membership Categories:

- Student:** For full-time students. Benefits include meeting notices, one vote on organizational issues, INPAWS newsletter, INPAWS membership directory.
- Individual:** Benefits are the same as for student.
- Family:** Includes head(s) of household and dependents. Benefits include meeting notices, INPAWS newsletter, INPAWS membership directory, and two votes on organizational issues.
- Patron:** Benefits are the same as for family, plus donation.
- Sponsor:** Benefits are the same as for family, plus donation.
- Corporate:** Benefits include newsletter, meeting notices, directory, special recognition, plus donation.

Please complete this form and mail, along with your check made payable to:

Indiana Native Plant and Wildflower Society

c/o Carolyn Harstad, 5952 Lieber Road, Indianapolis, IN 46208.

Check your mailing label - please see page 13

INDIANA
Native Plant and Wildflower Society

6106 Kingsley Drive
Indianapolis, IN 46220

Non-Profit
Organization
U.S. Postage
PAID
Indianapolis, IN
Permit No. 9892

Address Correction Requested

WENDY FORD
6911 CABERNET WAY
INDIANAPOLIS, IN 46278-1537